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Extending the Theory of Planned Behavior: The Role of Electronic Word of Mouth and Personal Moral Norms on Green Food Purchase Intention

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ABSTRACT

Heightened public awareness of environmental challenges has significantly influenced green consumer behavior. This study extends the traditional framework of the Theory of Planned Behavior (TPB) by integrating two additional constructs-electronic word of mouth (eWOM) and personal moral norms (PMN) to assess their efficacy in explaining consumers' green food purchase intention (PI). In addition, the moderating role of country of origin (COO) is examined in the relationship between green food PI and its antecedents. Data were obtained from 283 respondents through convenience sampling. The hypothesized relationships were tested using PLS-SEM. This study contributes strong empirical support for the TPB framework in explaining green food PI. By incorporating eWOM and PMN, the model demonstrates greater explanatory power, leading to a more comprehensive understanding of green food PI. Notably, the results reveal that COO does not function as a moderator, contrary to the hypothesis. Instead, a post hoc analysis indicates that COO serves as a significant direct predictor of green food PI. The findings provide important theoretical and managerial insights into consumer purchasing behaviors of green food.

Keywords: theory of planned behavior, eWOM, personal moral norms, country of origin, Vietnam

1. INTRODUCTION

Environmental degradation, climate change, and increasing health concerns have accelerated the global shift toward green consumption. Green products often synonymous with being organic, eco-friendly, and sustainable are gaining traction among consumers as a response to both environmental crises and a growing awareness of individual well-being [1, 2]. Green products are increasingly recognized as a cornerstone solution for achieving comprehensive environmental sustainability [3]. This trend is especially pronounced in sectors such as skincare, food, clothing, and travel, where consumers are

increasingly opting for green alternatives that align with their ethical, health-conscious, and environmentally conscious values [4, 5]. Quarantine measures and global health anxieties have intensified demand for products perceived as natural and safe, presenting new opportunities for green industries [6].

The TPB proposed by Ajzen [7] provides a foundational framework for explaining behavioral intention through three core determinants: attitude (AT), subjective norm (SN), and perceived behavioral control (PBC). TPB has been widely employed in social science research across diverse domains, including green food [8, 9], green product consumption [10, 11], tourism [12], and green skincare [13], with substantial empirical support for its explanatory strength. According to Dagher et al. [14], nations vary in their levels of ecological progress, and comparative cultural research is essential for the advancement of both sustainable marketing strategies and environmental policy frameworks. In Vietnam, the green food market is in an emerging stage, and consumers face high information asymmetry regarding food safety and organic standards [15, 9]. However, empirical applications of the TPB within the current context of green food consumption remain limited.

Although some prior studies have incorporated past behavior variables such as traditional word-of-mouth [16], the rapid digitalization of consumer communication calls for greater theoretical attention to electronic word-of-mouth (eWOM). Compared with conventional interpersonal communication, eWOM exerts broader, faster, and more scalable social influence, particularly for green food products whose environmental and safety attributes are difficult for consumers to assess prior to purchase. Although the emerging literature shows the empirical extensions of TPB with eWOM, they are fragmented by context and modeling choices [12, 17]. Most existing research has concentrated on the three core constructs of TPB, often neglecting other influential factors such as eWOM [18]. Accordingly, a deeper analysis focusing on the core communication competencies between online buyers and sellers remains essential to address current literature gaps [19].

Moreover, Ajzen [7] emphasized that beyond social pressure from significant others, individuals' moral normative judgments should also be considered in predicting behavior. Recent research further suggests that TPB's predictive power can be strengthened by incorporating context-specific variables [20, 21]. PMN, representing an individual's internalized ethical responsibility, serves as a critical driver of environmentally responsible behavior and aligns with the value-oriented identity of younger consumers [11]. Despite the effectiveness of adding MN into the TPB, their integration lacks consistency and theoretical synthesis [22,23].

Furthermore, the study introduces COO as a moderator. In developing countries, food safety concerns and limited access to reliable eco-labels make COO an important extrinsic cue influencing consumer decision-making [24]. Hsu et al. [25] emphasized that COO embodies consumers' perceptions and biases toward the product's country of manufacture, which can substantially shape product evaluations, trust, and purchase behavior. Within the green food sector, this effect is magnified, given that a nation's environmental reputation significantly informs consumer confidence. According to

Kartikasari [26], it is necessary to extend the TPB in a new online market where local and foreign goods compete on a level playing field. Therefore, this study also examines the moderating effect of COO on the relationships between TPB original components and PI.

The current study aims to bridge the identified theoretical gaps by developing an enriched TPB framework tailored to the emerging green food market in Vietnam. By integrating eWOM and PMN, the study addresses the fragmented nature of current literature and accounts for both digital social influence and internalized moral obligations. Furthermore, it examines COO as a critical moderator, providing insight into how extrinsic cues and national reputation mitigate information asymmetry in developing countries. The contribution of the research lies in its theoretical synthesis, offering a more holistic predictive model for sustainable consumption. Practically, tThe findings may help marketers and policymakers in crafting targeted strategies that leverage digital advocacy and ethical signaling to bolster consumer trust. Ultimately, it advances the understanding of green food PI within a rapidly digitalizing, safety-conscious emerging market.

2. LITERATURE REVIEW

TPB is "perhaps the most influential theory in the prediction of social and health behaviors" [27]. Since its introduction, TPB has been widely employed to examine behavior across diverse contexts, including green food [8,9], green skincare consumption [28,25], environmentally friendly product choices [11], and tourism [12]. In this study, SN is conceptualized as the perceived social pressure that encourages individuals to engage in green food purchasing. Prior studies studies provide empirical evidence underscoring the significant role of SN in shaping consumers' intentions to purchase eco-friendly products [29]. Specifically, the positive impact of SN on green product PI has been consistently confirmed [10; 11]. Thus, this study presents the following hypothesis:

H1: SN positively influences green food PI.

In this study, AT is conceptualized as a personal evaluation of purchasing green food products. While some studies have reported a limited association between AT and PI [30], most research has confirmed a significant positive relationship. Within the green product and organic food context, AT explains a considerable proportion of the variance in pro-environmental behaviors [10, 5] and is widely regarded as the most influential determinant of green PI. Moreover, AT is consistently regarded as a critical predictor of green PI [10, 11]. Thus, we propose:

H2: AT positively influences green food PI.

PBC refers to the extent to which individuals perceive their ability to engage in green food purchasing behavior and is considered one of the most influential predictors of green PI [31]. PBC has been shown to exert a strong effect on PI and can substantially shape consumer behavior [32]. Nonetheless, in the context of green products, consumers frequently face substantial barriers—such as elevated prices and limited availability—that may restrict their purchasing decisions [33]. Despite these challenges, prior studies have demonstrated a positive relationship between PBC and green PI. [34, 11]. Thus, we

propose:

H3: PBC positively influences green food PI.

Recent research has explored online reviews of consumers as a form of eWOM, demonstrating their significant influence on consumer behavior [35, 13]. Román et al. [36] demonstrated that electronic evaluations and online reviews, when perceived as useful, not only mitigate uncertainty and information asymmetry but also foster more favorable consumer AT toward products. As a result, eWOM helps mitigate perceived risk and facilitates purchase decisions. The perceived experience and credibility conveyed in these online reviews have been shown to positively impact PI [37]. Furthermore, social media messages have been found to enhance consumers' willingness to buy [13], and social media engagement has been linked to greater green PI [38]. Particularly, modern consumers do not only trust eWOM based on past user experience, they also critically analyze its content including corporate social responsibility messages [39]. Given this growing influence, it is essential to examine the extent to which consumers value eWOM and to understand the motivations behind their reliance on digital opinion platforms when making environmentally conscious purchase decisions. Accordingly, we propose:

H4: eWOM positively influences green food PI.

PMN refers to an individual's internalized sense of moral obligation that influences the evaluation of behavior based on personal ethical standards and perceived social responsibilities [40]. While both SN and PMN serve as predictors of collective behavior, prior research suggests that PMN play a more critical role in environmentally responsible behaviors [41]. TPB emphasized that beyond perceived social pressure from significant others, individuals' moral evaluations should also be incorporated when examining behavioral intentions [7]. Guagnano et al. [42] further argued that PMN could serve as a valuable extension to the TPB framework.

Empirical evidence has substantiated this proposition. Specifically, incorporating PMN as an additional predictor has been shown to strengthen the TPB model's ability in relation to environmentally conscious consumer behaviors, including the purchase of sustainable apparel [43] and green computing products [44]. Extending these insights, the present study contends that PMN are equally pertinent in predicting high-cost pro-environmental behaviors. A stronger sense of moral obligation motivates consumers to participate more actively in environmentally responsible consumption behaviors. Accordingly, we propose:

H5: PMN positively influences green food PI.

COO was defined as the stereotype, reputation, and image linked to products from a specific country, shaped by political conditions, economic development, national characteristics, cultural traditions and historical background [45]. According to Signaling Theory, COO serves as a significant extrinsic signal that communicates quality and reliability of the product [46]. When consumers lack direct knowledge of a brand or its products, especially at the emerging stage with information asymmetric like green market in Vietnam, they frequently use COO as a heuristic to infer attributes such as reliability,

quality, and performance [47]. A favorable COO image can generate a positive "halo effect," functioning as an identity cue that provides consumers with a reliable and consistent external reference for evaluating product quality [48]. In contrast, an unfavorable COO image may result in negative evaluations and reduced PI. Dobrenova et al. [49] found that more positive consumer perceptions of COO lead to more favorable product evaluations and stronger PI. Therefore, the COO of a product tends to act as a subtitute for direct knowledge; thereby reducing the mental effort required to verify green credentials.

Although substantial empirical studies identifies it as a powerful direct predictor of product evaluations and buying behavior, there are few studies analysing the potential interplay between the effects of organic or green attributes and COO on consumers' food preferences and choices [50]. Consequently, there is limited understanding of consumer inclinations towards various import nations concerning green products. While prior research has successfully found significant moderating effects for COO in green industries [25], more recent empirical evidence suggests a lack of consistency. Several studies have tendered the insignificant moderating effect of COO on the paths between TPB antecedents and green purchase intention [28 51]. This highlights a debate regarding the moderating role of COO remains robust when integrated into an extended TPB framework.

SN represents the social pressure to perform in pro-environmental behavior and significantly generates the effect on PI [10, 11]. Yet, SN are more effective when green products carry higher social prestige and status-signaling value [52, 53]. A favorable COO serves as a social reinforcement signal that enhances the acceptability of green purchases within the consumer's reference group. Therefore, a high COO will strengthen the SN-green PI link because the purchase provides both environmental utility and social capital. In contrast, a poor COO may lead the consumer to ignore social pressure due to fears of product failure. Therefore, we propose:

H6a: COO moderates the relationship between SN and green food PI.

While positive green AT is a primary driver of PI [5, 54], green skepticism and related doubts significantly weaken this effect [55]. Following the signaling theory, the findings of Yang et al. [56] showed that favorable COO serves as a prestigious external signal that validates the consumer's positive evaluation. It means that when a consumer holds a favorable AT toward green food, a prestigious COO acts as a mechanism reducing the perceived risk of "greenwashing". It ensures that a consumer's positive AT translates more powerfully into a concrete PI. Hence, we propose:

H6b: COO moderates the relationship between AT and green food PI.

PBC exerts a strong effect on green PI [31]. Within the green food sector, eco-labels raise buying intention when they are perceived as valuable and credible [8]. However, this intention is further dependent on the consumer's PBC. It means that PBC is hindered by a lack of trust in complex eco-labels. In this scenario, COO functions as a trust-facilitating signal [46], and it helps reduce the mental effort required to examine a product's green

credentials. Consequently, by serving as a reliable heuristic, a high COO makes the purchase more accessible and controlled, thereby ensuring consumption of less effort, leading to the potential intention to buy.

H6c: COO moderates the relationship between PBC and green food PI

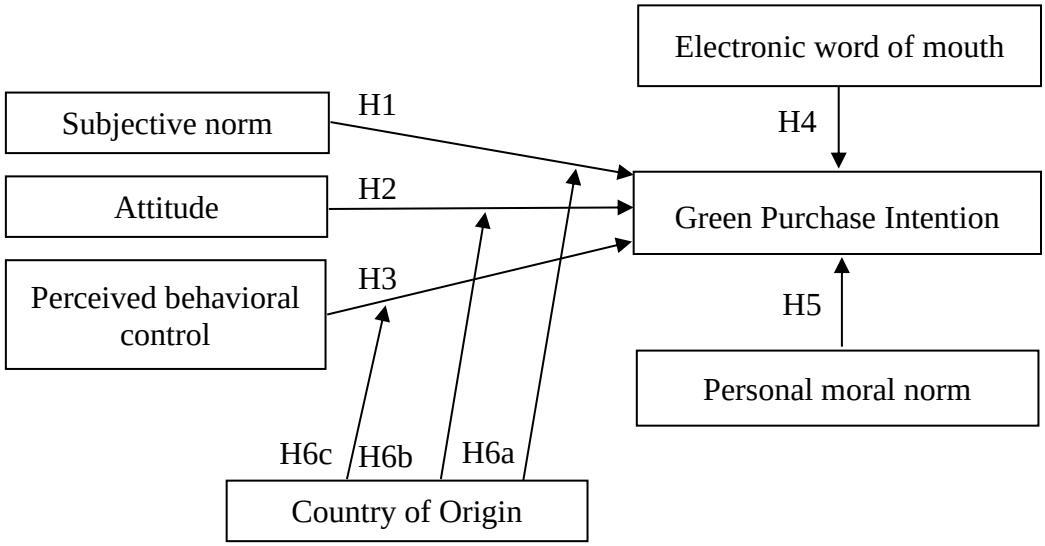

Figure 1. Conceptual model

3. METHODOLOGY

3.1 Measurement

All measurement items were based on previous research (Appendix 1). The construct of AT was based on Cheah et al. [57]; Jaiswal and Kant [31]. Items measuring SN and PBC was derived from Salem and Salem [58]. eWOM was adopted from Bambauer-Sachse and Mangold [59]. PMN was adopted from Kaiser and Scheuthle [60]. COO was based on Blanco-Encomienda et al. [61] and Cho et al. [62]. Finally, items for PI were based on Shukla [63]. All items were measured using a 5-point Likert's scale from "strongly disagree" (1) to "strongly agree" (5).

3.2 Data Collection

The questionnaire was initially developed in English and subsequently translated into Vietnamese to ensure linguistic accuracy and contextual relevance. Before full distribution, a pretest with 50 participants was implemented to verify the clarity and relevance of the item wording, the accuracy of construct measurements, and the comprehensibility of the back English–Vietnamese translation. Based on feedback, the Vietnamese version underwent minor refinements; specifically, technical terms in the "Green Food" construct were simplified into more colloquial language to prevent respondent confusion and ensure the items effectively captured the intended constructs within the Vietnamese retail context. Furthermore, to address potential subjective interpretations, a clear and standardized definition of "green food" was provided at the beginning of the questionnaire. In the context of this study, green food refers to products grown, harvested, and processed under safety standards, free from toxic chemicals or

growth stimulants, and environmentally friendly. This ensured that all respondents shared a consistent understanding and focused their responses specifically on green food products.

Data were collected through an online survey administered in Vietnam during the study period. A convenience sampling technique was employed to recruit respondents by distributing a URL across major social media platforms, including Facebook groups. The target respondents were Vietnamese consumers with experience in purchasing green food consumption. To ensure relevance, the survey began with a screening question verifying respondents' prior engagement with green food.

A total of 300 questionnaires were distributed, yielding 283 valid responses after excluding incomplete and inconsistent cases. A total of 300 questionnaires were distributed, yielding 283 valid responses after excluding incomplete and inconsistent cases. The personal information of respondents indicates a nearly balanced gender distribution, with females accounting for 50.9% and males for 49.1%. Most respondents were aged 18–24 (38.2%), followed by those aged 25–30 (36.0%) and 31–40 (25.8%). Regarding monthly income, 27.6% of respondents reported earning less than $250, while 36.4% earned between $250 and $400, and 36.0% reported incomes above $400.

3.3 Data analysis

This study utilized Partial Least Squares Structural Equation Modeling (PLS-SEM) to evaluate the hypothesized relationships among the latent constructs. PLS-SEM was selected for its superior efficacy in analyzing complex causal structures and multi-stage mediating frameworks [64]. As a second-generation multivariate technique, PLS-SEM offers significant advantages in handling non-normal data distributions and maintaining robustness even with relatively modest sample sizes [65]. Consequently, the structural model was assessed using SmartPLS 3.0, while preliminary data screening and descriptive statistics were performed via SPSS 20.

3.4 Common method bias

This study employed a cross-sectional design based on self-reported questionnaire data, which may be susceptible to common method bias (CMB). Following the recommendations of Podsakoff et al. [66], this study adopted the Full Collinearity Assessment approach using Variance Inflation Factors (VIF) to evaluate CMB [67]. Table 1 shows that all VIF values are less than 3.3 threshold, indicating that CMB was not a concern in this study.

4. RESULTS

4.1 Measurement model

Table 1 presents the Cronbach's alpha (α), composite reliability (CR), and average variance extracted (AVE). As results, all α values exceed 0.70, indicating internal consistency. The CR values range from 0.947 to 0.975, exceeding the recommended threshold of 0.70, while the AVE values are above 0.5 [64]. In addition, all factor loadings

are greater than 0.7 [68]. Hence, the results indicate that the constructs demonstrate adequate convergent validity.

Table 1. Measurement

Factor	Item	Standardized loading	α	CR	AVE	VIF
AT	AT1	0.945	0.925	0.952	0.869	1.905
	AT2	0.933				
	AT3	0.919				
SN	SN1	0.925	0.926	0.953	0.871	2.34
	SN2	0.911				
	SN3	0.964				
PBC	BC1	0.985	0.966	0.965	0.908	3.014
	BC2	0.946				
	BC3	0.926				
	BC4	0.954				
EWOM	EW1	0.947	0.935	0.954	0.837	2.518
	EW2	0.895				
	EW3	0.902				
	EW4	0.915				
PMN	MN1	0.897	0.925	0.947	0.816	2.124
	MN2	0.932				
	MN3	0.863				
	MN4	0.921				
COO	CO1	0.942	0.954	0.965	0.846	2.696
	CO2	0.897				
	CO3	0.925				
	CO4	0.923				
	CO5	0.911				
PI	PI1	0.962	0.961	0.975	0.928	2.979
	PI2	0.947				
	PI3	0.980				

Table 2 shows that the square roots of AVE surpass its correlations with other constructs [69]. Moreover, all the Heterotrait–Monotrait values are below 0.90, indicating satisfactory discriminant validity [64].

Table 2. Discriminant validity

	AT	**COO**	**EW**	**PI**	**PBC**	**PMN**	**SN**
Fornell-Larcker criterion							
AT	**0.932**						
COO	0.598	**0.920**					
EWOM.EW	0.606	0.684	**0.915**				
PI	0.632	0.715	0.702	**0.963**			
PBC	0.629	0.687	0.716	0.712	**0.953**		
PMN	0.556	0.668	0.603	0.670	0.692	**0.903**	
SN	0.589	0.687	0.682	0.671	0.685	0.607	**0.934**
Heterotrait–Monotrait ratio							
AT							
COO	0.636						
EWOM.EW	0.652	0.725					
PI	0.669	0.746	0.740				
PBC	0.666	0.716	0.754	0.738			
PMN	0.601	0.711	0.648	0.710	0.733		
SN	0.636	0.731	0.733	0.711	0.724	0.655	

Figure 2 shows that eWOM (β = 0.235) exhibited the strongest positive and significant impact on green PI, followed by PMN (β = 0.214), PBC (β = 0.185), SN (β = 0.161), and AT (β = 0.159). These findings provide support for hypotheses H1–H5. Furthermore, as illustrated in Figure 2, the study further examined the moderating role of COO in the relationships between the antecedents and green PI. The interaction effects of SN, AT, and PBC with COO on green PI were found to be non-significant. Therefore, H6a, H6b, and H6c were rejected.

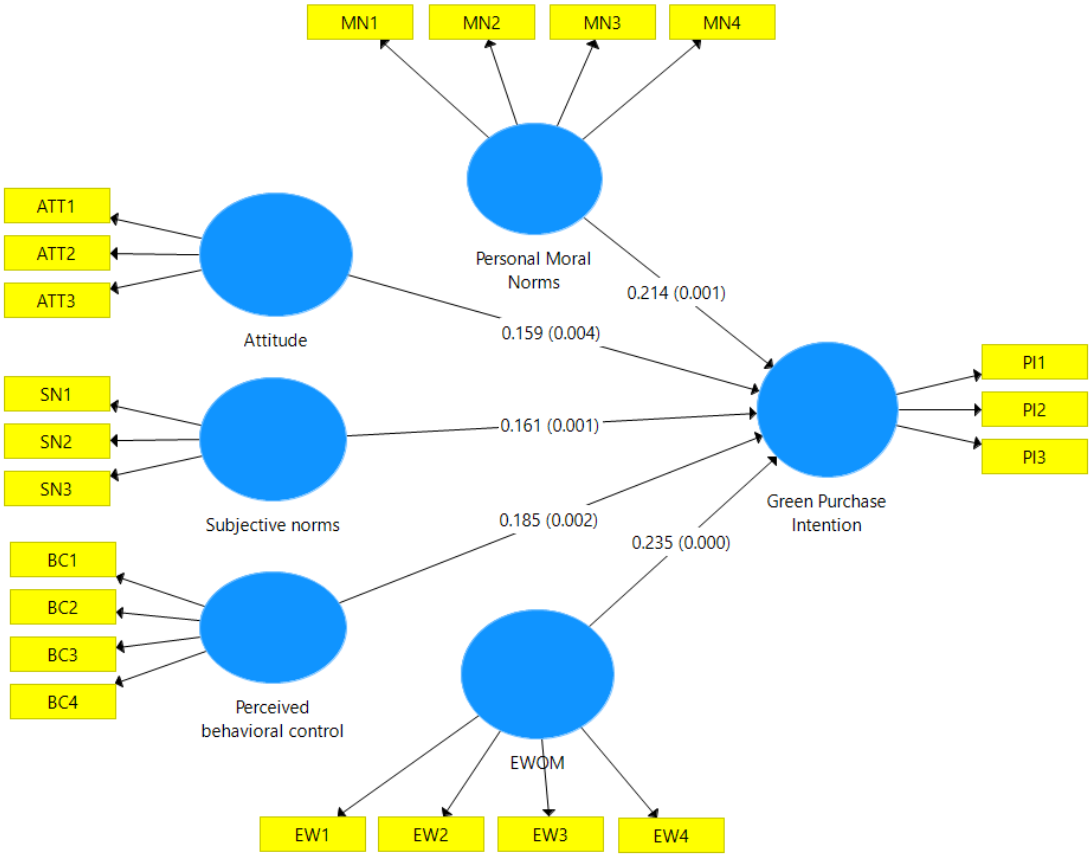

Figure 2. Path analysis results without COO

While the moderation effects of COO were not statistically significant ($p > 0.05$), the structural model assessment revealed a robust and significant direct relationship between COO and PI ($\beta = 0.218$, $p < 0.001$). Following the recommendation of Sarstedt et al. [70], a supplementary analysis was conducted to evaluate this unexpected finding. The results indicate that although COO does not moderate function as a boundary condition for TPB constructs, it serves as a powerful independent antecedent. This empirical evidence suggests a revised model structure where COO acts as a primary extrinsic cue.

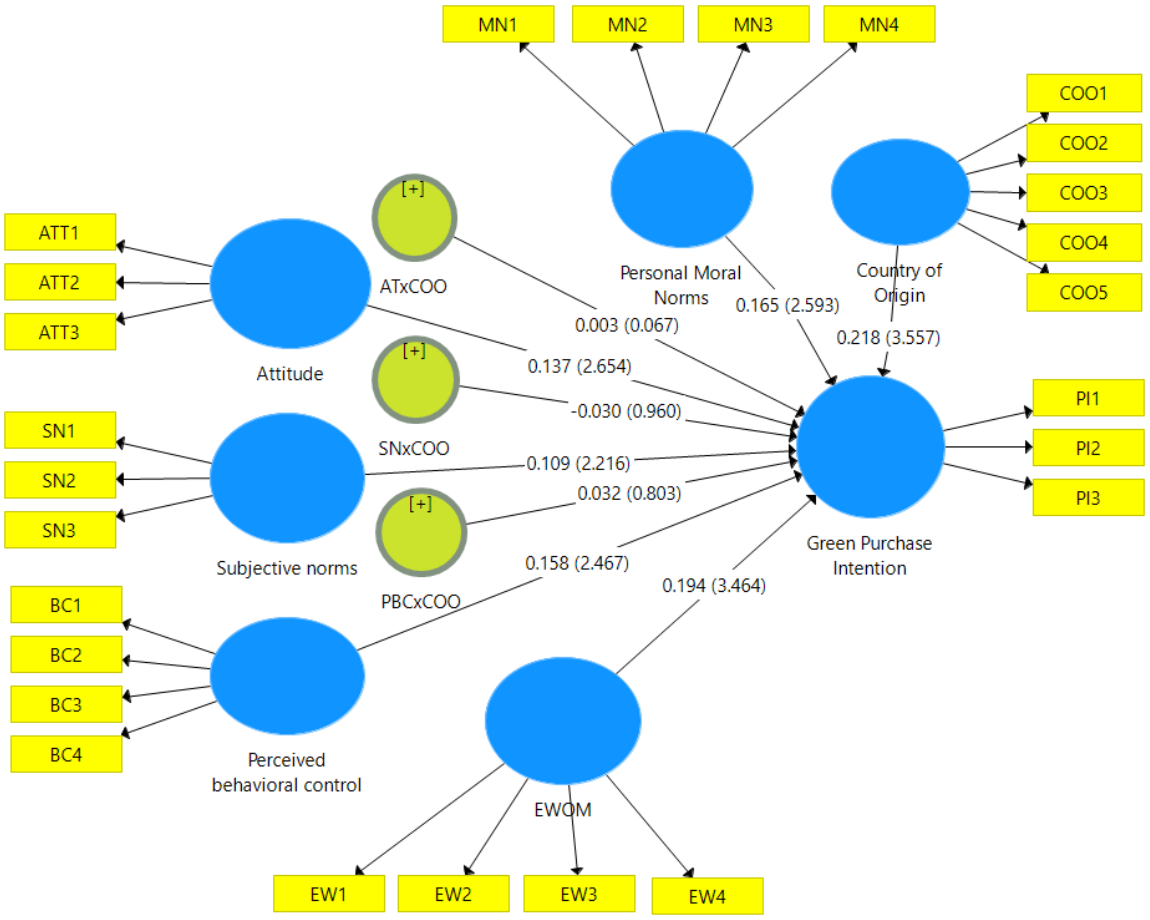

Figure 3. Path analysis results with COO

A key criterion for assessing the adequacy of a model is its performance relative to competing, theoretically justified alternatives [71]. In line with prior studies, this research compared alternative models examining the impact of SN, AT, and PBC on consumer PI. Specifically, within the PLS-SEM framework, which prioritizes predictive performance over the global covariance fit common in CB-SEM, model performance was evaluated using established metrics, including R^2, Q^2 and the Akaike Information Criterion (AIC). Whereas R^2 and Q^2 capture explanatory and predictive power [70, 72], AIC provides a balance between parsimony and model fit by penalizing unnecessary model complexity, making it an ideal criterion for model selection in a PLS-SEM context [73, 74]. The proposed model achieved a higher R^2 value than the competing model, demonstrating stronger explanatory power for the dependent construct. Similarly, the Q^2 value increased from 0.550 to 0.593, indicating improved predictive relevance. Moreover, the competing models reported higher AIC values compared to the proposed model (–252.198 > –284.795), confirming the proposed model as the most optimal and parsimonious choice. Although the alternative model showed slightly better SRMR and NFI values, the differences were minimal, and both models satisfied recommended thresholds (SRMR < 0.08; NFI > 0.90). In PLS-SEM, these fit indices serve as diagnostic checks for structural integrity rather than absolute measures of model quality. Overall, the results suggest that the proposed model demonstrates a better overall performance in terms of both explanation and prediction (Table 3).

Table 3. Results model

(Moderator: COO)						
Variables	Basic model		Expand model		Moderation model	
Direct effects	β	t-value	β	t-value	β	t-value
AT	0.232***	4.363	0.159**	2.649	0.137**	2.700
PBC	0.376***	7.291	0.185**	2.605	0.158*	2.423
SN	0.277***	5.565	0.161**	2.394	0.109*	2.214
EWOM			0.235***	3.459	0.194***	3.519
PMN			0.214***	2.647	0.165*	2.469
Moderator effects						
ATxCOO					0.003	0.067
PBCxCOO					0.032	0.803
SNxCOO					-0.030	0.960
Controlled effect						
COO (Supplementary analysis)					0.218***	
R^2 adj PI (%)	0.596		0.642		0.655	
SRMR	0.027		0.031		0.029	
NFI	0.932		0.922		0.913	
Q^2	0.550		0.593		0.604	
AIC	-252.198		-284.795		-291.160	

4.2 Discussion

The results of the baseline model provide robust evidence that the original TPB constructs: SN, AT, and PBC, positively affect green food PI. These findings align with prior research on green purchasing behavior, including studies on organic food consumption [8, 75], green hotel selection [76], and green skincare products [25]. These findings reinforce the continued relevance of TPB as a framework for explaining environmentally responsible consumption behavior.

Importantly, the extended constructs of eWOM and PMN were also found to be strongly and positively associated with green food PI. Incorporating these variables enhanced the model's explanatory power (adj R^2 improved from 0.596 to 0.642), demonstrating that the integration of digital social influence and internalized moral obligation substantially enhances the predictive capability of TPB. Specifically, eWOM reflects the growing dependence of Vietnamese consumers on online reviews and peer-generated information when evaluating credence attributes such as food safety, organic certification, and environmental sustainability. Interestingly, eWOM has the strongest influence on green

food PI, which means that digital social influence has surpassed traditional constructs of TPB. It is due to the anonymity of online reviews and the high perceived expertise of digital influencers in the Vietnamese green food market. The finding supported the critical role of eWOM in shaping purchase intention by Elvin et al. [19]. Furthermore, eWOM serves as an effective mechanism for spreading corporate social responsibility information as well [39].

Meanwhile, PMN captures the ethical self-regulation dimension of green consumption, indicating that purchasing green food is not merely a rational or socially influenced act but also a morally driven decision. These findings validate the academic approach of enriching TPB with additional constructs to strengthen its explanatory depth, as demonstrated in this study and supported by Kamalanon et al. [77]. This approach is also theoretically aligned with the frameworks advanced by J. Han et al. [11] and Wang et al. [40], which emphasize the integration of moral and social influence mechanisms into intention-based models. In this study, PMN has a greater impact on green food PI than SN. This represents a significant shift in Vietnamese consumer psychology. Consumers are increasingly viewing green food through the lens of internalized personal contribution and responsibility rather than just following an externalized social trend.

This study further examined whether COO moderates the relationships between PI and its antecedent factors. The findings show that COO does not exert a significant moderating role, which contrasts with the results of Hsu et al. [25], who reported a significant moderating role of COO among Taiwanese consumers. They also support the insignificant moderating effect of COO in the atittude-purchase intention link toward green skincare in Vietnam market [28]. However, although COO does not reshape the strength of the relationships between SN, AT, PBC, eWOM, PMN, and PI, it exhibits a significant direct impact on PI. This suggests that in the emerging Vietnamese green food market, COO functions primarily as a direct extrinsic quality and credibility cue rather than a boundary condition that alters the underlying psychological mechanisms of TPB.

Several reasons may explain this non-significant moderation. First, within the Vietnamese context, concerns regarding food safety, product authenticity, and certification reliability remain salient. However, the green food market is in an emerging stage, and consumers face high information asymmetry regarding food safety and organic standards [15, 9]. Thus, COO may function more as a heuristic cue—a mental shortcut for decision-making—rather than a moderator. Second, consumers' internal drivers, such as personal moral norms and attitudes toward green food, appear to be deeply rooted or value-based; thus, they may not necessarily be strengthened or weakened by the product's origin. Finally, in a context where information asymmetry regarding organic standards is high, COO may act as a substitute for trust or formal certification cues. When consumers face uncertainty about local product quality and safety, a favorable COO independently provides the necessary confidence to purchase, regardless of their pre-existing normative or cognitive beliefs. Consequently, in emerging green markets such as Vietnam, COO serves as a standalone heuristic trust mechanism instead of a moderator of the cognitive–normative processes driving green PI.

5. CONCLUSION

5.1 Theoretical implication

This study advances theoretical understanding in four key ways. First, this study extends the TPB by validating its three core constructs—SN, AT, and PBC—within Vietnam's green food market, reinforcing the model's explanatory robustness in an emerging economy context characterized by growing environmental awareness and food safety concerns, but information asymmetry and unstable regulatory environment.

Second, the study confirms the significant predictive roles of eWOM and PMN, suggesting that green PI is driven by both rational and social factors as well as digital influence and moral obligation. eWOM is treated as an information bridge by providing peer-validated proof of safety, making it a stronger predictor than traditional TPB constructs. This is essential for credence products because it mitigates perceived risk and reduces uncertainty regarding organic standards and food safety that consumers cannot assess on their own. Furthermore, reinterpreting TPB involves recognizing that digital social influence now serves as a necessary external reference point. The extended TPB fits the modern context when it treats the eWOM as a proxy for trust in a market where formal certifications may be perceived as unstable or unreliable. Therefore, subjective evaluations are no longer formed in isolation but are continuously reshaped by social influence of digital communication.

Acting as an internal regulatory mechanism, PMN has proved that green consumption in Vietnam has evolved from a social trend into an internalized ethical obligation. There is a clear psychological shift where PMN plays a more important role than SN. Besides, while SN represents an externalized social trend, PMN represents an internalized ethical obligation. It means that green consumption in the current context is no longer just about seeking social approval but has become a morally driven decision centered on personal contribution to environmental sustainability. By integrating these additional constructs into the original TPB framework, the study provides a more comprehensive and powerful explanation for modern green food purchasing behavior.

Finally, the findings clarify the theoretical role of COO. Although COO has a significant direct influence on green PI, serving as a cue for product credibility and quality, it does not moderate the relationships between TPB constructs and intention within a developing market context. This suggests that in emerging economies, COO does not change the strength of AT, SN, or PCB; it operates as an independent trust-enhancing signal rather than a boundary condition that reshapes underlying psychological mechanisms. Therefore, the study theoretically confirms the role of COO as a heuristic cue and direct driver of pro-environmental purchase behavior.

5.2 Managerial implication

First, the findings confirm that SN, AT, and PBC positively effects on consumers' PI. Consequently, marketers should leverage integrated marketing communication strategies across diverse channels, including digital platforms and social networks, to disseminate

persuasive product messages. Such efforts can foster favorable consumer AT, enhance product knowledge, and contribute to the construction of a credible and socially responsible corporate image.

Second, marketers should engage opinion leaders and trusted public figures as endorsers to highlight the dual benefits of green food products for personal health and environmental sustainability. This approach ensures that consumers with limited awareness are exposed to reliable information, thereby stimulating their PI. Moreover, the study highlights that eWOM exerts the strongest influence on PI. Accordingly, marketers should actively monitor and manage eWOM generated by celebrities, social media influencers, and online community members to enhance communication effectiveness. Given its ability to shape reference groups—including family, peers, and online networks—eWOM represents a critical determinant of green product adoption.

Thirdly, consumer trust can be strengthened through the provision of credible eco-certifications and eco-labels. Marketers should also emphasize the distinctions between green and conventional products, particularly by underscoring the environmental benefits derived from adopting green alternatives. This comparative approach can activate consumers' PMN and further motivate pro-environmental purchasing behavior.

Finally, green food products should be offered at reasonable prices, such as the social responsibility vouchers rather than the general discounts to maintain the moral positioning while still providing the economic incentive. Wu and Zhu [78] observed that discount vouchers represent one of the most effective tools for attracting consumers in the short term. Thus, periodic promotional activities, such as responsible discount vouchers, frequent green buyer rewards, and cost-breakdown labels, can also serve as effective mechanisms to stimulate demand.

5.3 Limitations

This study has several limitations. Firstly, the sample mainly consisted of individuals aged 18–40, which may limit the generalizability of the findings to the broader population. Future research should include participants from a wider age range and more diverse demographic backgrounds. Secondly, the present investigation focused exclusively on green food products. Future research should incorporate additional categories of green products. Thirdly, the research context was confined to Vietnamese consumers. Comparative studies across other countries are warranted to explore cross-cultural variations in green purchasing behavior.

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Appendix 1. Questionnaire measurement items.

Variable	Items	
Attitude	I like the idea of purchasing green food products.	Jaiswal and Kant, [31], Cheah et al. [57]
	I have a favorable attitude toward purchasing green versions of food products.	
	I favor retail stores that offer green food products	
Subjective norms	Most people who are important to me think that I should use environmentally friendly food products	
	Many people around me generally buy the green food which are environmentally safe	Salem and Salem [58]
	I feel social pressure to buy environmentally friendly food products	
Perceived behavioral control	I am the one who decides whether to buy environmentally safe food products.	
	I have the financial resources to purchase green food products.	Salem and Salem [58]
	For me, purchasing green food products is very easy.	
	I have complete control over my decision to purchase environmentally safe food products.	
Electronic word of mouth	I often read other consumers' online reviews to see which green food products make a good impression on others.	
	To ensure I buy the right product, I frequently read online reviews for green food products.	Bambauer-Sachse and Mangold [59]
	I often consult online green food reviews to help choose the right product or brand.	
	I frequently gather information from online consumer reviews before purchasing a specific green food product.	
Personal Moral Norm	Purchasing green food products is my responsibility toward society and the environment.	
	Choosing green food over conventional options feels like making a personal contribution to a better world.	Kaiser and Scheuthle [60]
	Buying green food products instead of conventional ones feels like the morally right thing to do.	
	Purchasing green food products makes me feel like a better person.	
Country of Origin	Green food products from the country of origin are of high quality.	
	Green food products from the country of origin are attractive.	Cho et al. [62]; Blanco-Encomienda et al. [61]
	Green food products from the country of origin are reliable.	
	It is desirable to own green food products from the country of origin.	
	Green food products made in this country usually offer good value for money.	
Purchase intention	I would prefer to buy this green food product over other available brands.	
	I am willing to recommend this green food product to others.	Shukla [63]
	I intend to purchase this green food product in the future.	