



Green Material & Process and Green Packaging as Drivers of Tourists' Sustainable Purchase Intention: Evidence from a PLS-SEM Study in Lake Toba, Indonesia

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Abstract. Growing environmental awareness has encouraged tourism destinations to adopt environmentally responsible production practices and sustainable packaging to promote sustainable consumption. However, empirical evidence explaining the simultaneous effects of Green Material & Process and Green Packaging on tourists' sustainable purchase intention remains limited, particularly in emerging tourism destinations. This study investigated how these two green marketing dimensions influence tourists' sustainable purchase intention in Lake Toba, Indonesia. A quantitative cross-sectional survey was conducted using data collected from 306 tourists, and the proposed relationships were analyzed through Partial Least Squares Structural Equation Modeling (PLS-SEM). The measurement model demonstrated satisfactory reliability and validity (Composite Reliability = 0.850–0.928; AVE = 0.532–0.722), while the structural model exhibited substantial explanatory power ($R^2 = 0.699$; SRMR = 0.067; NFI = 0.832). The results indicated that both Green Material & Process and Green Packaging positively and significantly influenced Sustainable Purchase Intention. Green Packaging exerted the strongest effect ($\beta = 0.662$, $t = 10.988$, $p < 0.001$), whereas Green Material & Process also showed a significant positive effect ($\beta = 0.207$, $t = 3.321$, $p = 0.001$). These findings suggest that environmentally responsible packaging plays a more influential role than sustainable production practices in encouraging tourists' sustainable purchasing decisions. The study was limited to tourists visiting a single destination and employed a cross-sectional design, which may restrict the generalizability and causal interpretation of the findings. Nevertheless, this research extends the sustainable tourism and green marketing literature by providing integrated empirical evidence on the relative importance of sustainable production practices and environmentally friendly packaging in shaping tourists' sustainable purchase intention. The findings also offer practical guidance for destination managers, local SMEs, and policymakers seeking to strengthen sustainable consumption through environmentally responsible product development and packaging strategies.

Keywords: Green Material & Process; Green Packaging; Lake Toba; Sustainable Purchase Intention; Sustainable Tourism.

1. INTRODUCTION

Sustainable development has become one of the primary priorities in the global tourism industry as increasing environmental concerns continue to influence tourists' purchasing behaviour and business strategies. Growing environmental awareness, stricter sustainability regulations, and the transition toward responsible consumption have transformed sustainability from a voluntary business initiative into a strategic imperative for tourism destinations and tourism-related enterprises. Consequently, tourism organizations are increasingly encouraged to integrate environmentally responsible practices into their operations not only to minimize ecological impacts but also to enhance destination competitiveness and create long-term value for tourists and local communities. Among these practices, the adoption of green material and process and green packaging has emerged as an important strategy for encouraging sustainable

consumption and supporting environmentally responsible tourism development (Cheng et al., 2022a; Petkowicz et al., 2024).

Green material and process refer to the use of environmentally friendly raw materials and sustainable production processes that reduce waste generation, conserve natural resources, and minimize environmental impacts throughout the product life cycle. These practices include recyclable materials, biodegradable components, renewable resources, refillable systems, and reduced-material production designs, all of which contribute to improving environmental sustainability (Petkowicz et al., 2024). Previous studies have shown that consumers are more likely to develop positive purchase intentions when they recognize the tangible environmental benefits offered by sustainable materials and production practices rather than relying solely on environmental claims (Cheng et al., 2022b; Perret et al., 2025). Therefore, Green Material & Process has increasingly been recognized as a strategic component of sustainable marketing because it provides tangible evidence of firms' environmental commitment throughout the production process.

In addition to sustainable production practices, green packaging has become an increasingly influential marketing instrument because packaging serves as the first tangible communication medium between products and consumers. Green packaging communicates environmental responsibility through eco-friendly materials, transparent information, eco-labels, and sustainable package designs that reduce uncertainty regarding product sustainability. Previous studies indicate that transparent packaging and clear environmental information strengthen tourists' perceptions of environmental friendliness, increase green perceived value, reinforce destination trust, and ultimately encourage sustainable purchasing behaviour (Kuang et al., 2024; Moslehpour et al., 2021; Ollitervo et al., 2025). Furthermore, packaging materials often have a stronger influence on consumers' willingness to pay than other packaging attributes such as colours or digital information cues (Perret et al., 2025). Accordingly, green packaging functions not only as a protective element but also as a strategic marketing signal that communicates environmental credibility and influences tourists' purchasing evaluations.

Despite the growing body of literature, previous empirical findings remain inconclusive regarding the extent to which green production practices and green packaging directly influence sustainable purchase intention. Several studies report that green packaging positively affects purchase intention through green perceived value, trust, environmental attitudes, and willingness to pay (Cui et al., 2026; P. Duarte et al., 2024). However, other studies suggest that

packaging alone may not sufficiently influence purchasing decisions because tourists also consider product quality, convenience, habitual purchasing behaviour, and price sensitivity before making purchasing decisions (Mahmoud et al., 2022; Oloyede & Lignou, 2021). Similarly, while environmentally friendly materials and production processes generally contribute positively to purchase intention, their effects become meaningful only when consumers are able to recognize their functional environmental benefits (Cui et al., 2026). These inconsistent findings indicate that the effectiveness of green initiatives remains dependent on the broader decision-making context.

Although the literature on sustainable tourism marketing has expanded considerably, several important research gaps remain. First, previous studies have predominantly examined Green Material & Process and Green Packaging independently rather than simultaneously within an integrated research framework. Second, most existing studies have emphasized indirect mechanisms through mediating variables such as environmental attitudes, green perceived value, trust, environmental knowledge, subjective norms, and perceived behavioural control, while empirical evidence regarding their direct effects remains limited (Kuang et al., 2024; Nekmahmud et al., 2022; Patiño-Toro et al., 2024). Third, empirical studies have largely been conducted in developed countries or mature tourism destinations, leaving emerging tourism destinations relatively underexplored. Consequently, little is known about how these two environmental strategies jointly influence tourists' sustainable purchase intention in destinations where purchasing decisions are frequently made under limited information and time constraints.

Lake Toba, Indonesia, provides an appropriate context for examining sustainable purchasing behaviour because the destination has increasingly promoted sustainable tourism development while encouraging local businesses to adopt environmentally responsible products and packaging. As tourism activities continue to expand, local micro, small, and medium enterprises are expected to implement sustainable production processes and environmentally friendly packaging that support destination sustainability while meeting tourists' environmental expectations. As one of Indonesia's priority tourism destinations, Lake Toba represents an important empirical setting for examining whether environmentally responsible production practices and packaging strategies are capable of strengthening sustainable purchasing behaviour in an emerging tourism market. Understanding tourists' responses to these green initiatives is therefore essential for strengthening sustainable tourism

marketing strategies and encouraging environmentally responsible consumption within the destination.

This study differs from previous research in three important respects. First, it integrates Green Material & Process and Green Packaging into a single empirical framework to examine their simultaneous direct effects on Sustainable Purchase Intention. Second, it provides empirical evidence from Lake Toba, an emerging sustainable tourism destination that has received limited attention in the green marketing literature. Third, by applying Partial Least Squares Structural Equation Modeling (PLS-SEM) to data collected from 306 tourists, this study identifies the relative importance of environmentally responsible production practices and green packaging in explaining tourists' sustainable purchasing behaviour (F. Hair Jr et al., 2014; Sarstedt et al., 2021a).

Based on these considerations, this study aims to examine the influence of Green Material & Process and Green Packaging on Tourists' Sustainable Purchase Intention in Lake Toba, Indonesia. Specifically, the study evaluates the direct contribution of each construct in explaining tourists' sustainable purchasing intentions. Accordingly, this study addresses the following research question: To what extent do Green Material & Process and Green Packaging directly influence tourists' Sustainable Purchase Intention in an emerging tourism destination? By integrating these two environmental dimensions into a single empirical model, this research contributes to the growing literature on sustainable tourism marketing and provides practical insights for destination managers, tourism-related businesses, and policymakers in designing more effective environmental strategies that encourage sustainable purchasing behaviour.

2. LITERATURE REVIEW

Introduction

Sustainable consumption has become an increasingly important topic in tourism research as environmental issues continue to shape consumer preferences and destination management strategies. Tourism destinations are expected not only to provide memorable experiences but also to demonstrate environmental responsibility through sustainable products, production processes, and packaging. Consequently, green marketing practices have evolved from being merely promotional tools into strategic mechanisms for influencing tourists' purchasing decisions and encouraging environmentally responsible consumption (Cheng et al., 2022b; Fauzi et al., 2025).

A considerable amount of recent literature has demonstrated that environmentally responsible business practices enhance tourists' environmental perceptions, strengthen destination competitiveness, and encourage sustainable purchasing behaviour. Nevertheless, researchers continue to debate which dimensions of green marketing contribute most effectively to sustainable purchase intention. While some studies emphasize environmentally responsible production practices, others argue that environmentally friendly packaging provides stronger and more immediate signals of sustainability during tourists' purchasing decisions. This inconsistency indicates that the theoretical relationship between green production practices, green packaging, and sustainable purchase intention remains insufficiently understood.

Recent studies consistently indicate that environmentally responsible business practices enhance tourists' perceptions of environmental value, strengthen destination trust, and encourage sustainable purchasing behaviour. Among the various dimensions of green marketing, Green Material & Process and Green Packaging have received increasing academic attention because both represent visible manifestations of environmental commitment that directly influence consumer evaluations during the purchasing process (Kuang et al., 2024; Petkowicz et al., 2024).

Although previous studies generally report positive associations between green marketing initiatives and sustainable purchasing behaviour, empirical findings remain inconsistent regarding the relative contribution of Green Material & Process and Green Packaging. Previous research has primarily focused on indirect mechanisms, including green perceived value, environmental attitudes, destination trust, and environmental knowledge, while comparatively little attention has been devoted to examining the direct influence of these two constructs within an integrated theoretical framework. Therefore, a clearer theoretical synthesis is required to explain how environmentally responsible production practices and sustainable packaging jointly shape tourists' sustainable purchase intention.

Theoretical Framework

The relationship between environmentally responsible business practices and sustainable purchase intention has been explained through several complementary theoretical perspectives.

Among the available theoretical perspectives, the Extended Theory of Planned Behavior (TPB) and the Value–Belief–Norm (VBN) Theory provide the most comprehensive explanation for understanding environmentally responsible purchasing behaviour in tourism contexts (Ajzen, 2020). The TPB explains sustainable purchase intention through tourists'

attitudes, subjective norms, and perceived behavioural control, whereas the VBN Theory emphasizes that environmental values and personal norms motivate pro-environmental behaviour. These complementary perspectives suggest that green marketing practices function as external environmental stimuli capable of shaping tourists' cognitive evaluations, strengthening environmental beliefs, and ultimately influencing sustainable purchasing intentions.

The literature synthesized in this study indicates that Extended Theory of Planned Behavior (TPB), Value–Belief–Norm (VBN) Theory, environmental knowledge, environmental value, and green marketing perspectives constitute the dominant theoretical foundations for understanding sustainable purchasing behaviour in tourism contexts (Ajzen, 1991; Cheng et al., 2022b; Jalilvand & Samiei, 2012; Ozbey et al., 2024; Zhang & Chan, 2021).

Within the TPB framework, tourists' purchase intentions are influenced by attitudes, subjective norms, and perceived behavioural control. Previous empirical studies consistently demonstrate that environmentally responsible production practices and sustainable packaging improve tourists' attitudes toward environmentally friendly products. Nevertheless, the mechanisms through which these marketing initiatives influence behavioural intention remain subject to debate. Some studies argue that green marketing primarily strengthens environmental attitudes, whereas others suggest that trust, perceived value, and environmental knowledge represent more influential explanatory mechanisms (Lampreia et al., 2024; Ozbey et al., 2024; Zhang & Chan, 2021).

Green marketing initiatives, including environmentally friendly materials, sustainable production processes, and green packaging, contribute to favourable attitudes by enhancing tourists' perceptions of environmental responsibility and product credibility. The literature also emphasizes the importance of green perceived value, destination trust, and green image as psychological mechanisms through which green marketing practices influence purchasing intentions. Collectively, these theoretical perspectives indicate that Green Material & Process and Green Packaging should not be viewed merely as operational sustainability initiatives but as strategic marketing resources capable of generating environmental credibility, increasing perceived value, and strengthening tourists' sustainable purchase intention.

Green Packaging

Green Packaging refers to packaging designs, materials, and environmental information that communicate sustainability attributes while minimizing environmental impacts. Evidence consistently indicates that transparent packaging significantly improves tourists' green

purchase intention (Cui et al., 2026; Kuang et al., 2024; Mahmoud et al., 2022). Compared with Green Material & Process, Green Packaging provides more visible environmental signals during purchasing decisions. Numerous studies have argued that transparent packaging, eco-labels, and environmental information reduce information asymmetry, increase destination trust, and strengthen consumers' confidence in environmental claims (Kuang et al., 2024; Ollitervo et al., 2025). Nevertheless, other researchers argue that packaging alone cannot fully explain purchasing decisions because consumers continue to evaluate price, convenience, product quality, and habitual purchasing behaviour simultaneously (Mahmoud et al., 2022; Oloyede & Lignou, 2021). This inconsistency suggests that Green Packaging should be interpreted as an important environmental communication mechanism rather than an isolated determinant of sustainable purchasing behaviour.

Sustainable Purchase Intention

Sustainable Purchase Intention refers to consumers' willingness to purchase products and services that minimize negative environmental impacts while supporting sustainable development. Previous studies demonstrate that sustainable purchase intention is influenced by multiple psychological factors, including environmental attitudes, environmental knowledge, subjective norms, perceived behavioural control, ecological concern, and emotional value (Nekmahmud et al., 2022; Patiño-Toro et al., 2024).

Despite substantial theoretical development, previous studies have predominantly examined Sustainable Purchase Intention through psychological mediators while paying relatively limited attention to the direct contribution of operational green marketing practices, particularly Green Material & Process and Green Packaging. Consequently, further empirical investigation is required to determine the relative importance of these two environmental strategies in explaining tourists' sustainable purchasing behaviour.

Conceptual Framework

The present study integrates Green Material & Process and Green Packaging into a single conceptual framework to explain Tourists' Sustainable Purchase Intention. Unlike previous studies that have investigated these constructs separately or through multiple mediating mechanisms, this study proposes an integrated framework that simultaneously examines the direct effects of Green Material & Process and Green Packaging on Sustainable Purchase Intention. This integrated perspective extends the current green marketing literature by clarifying the relative contribution of environmentally responsible production practices and sustainable packaging within an emerging tourism destination. Accordingly, the proposed

conceptual framework provides a stronger theoretical foundation for understanding tourists' environmentally responsible purchasing decisions while addressing the empirical inconsistencies identified in previous research.

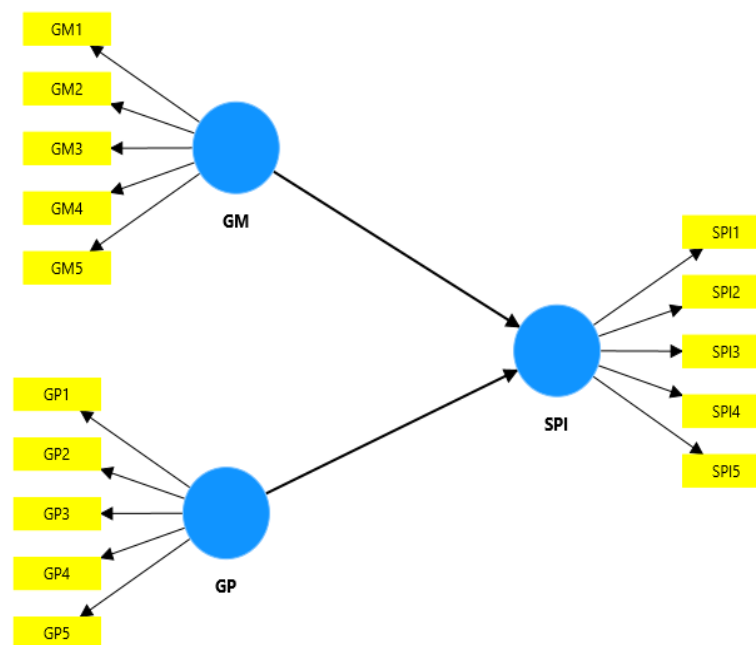


Figure 1. Framwork

Accordingly, the conceptual model proposes that Green Material & Process and Green Packaging function as independent variables that directly influence Sustainable Purchase Intention among tourists visiting Lake Toba. This framework provides an integrated perspective for understanding how environmentally responsible production practices and sustainable packaging jointly encourage sustainable consumption within tourism destinations.

3. RESEARCH METHODOLOGY

Research Design

This study employed a quantitative research design with a cross-sectional survey to examine the effects of Green Material & Process and Green Packaging on Tourists' Sustainable Purchase Intention in Lake Toba, Indonesia. A quantitative approach was selected because the primary objective of this study was to empirically test the causal relationships among latent constructs proposed in the conceptual framework. A cross-sectional survey was considered appropriate because tourists' perceptions and purchasing intentions were measured at a single point in time, allowing the proposed hypotheses to be examined efficiently within the natural tourism setting. A deductive approach under the positivist research paradigm was adopted to empirically test the proposed relationships among the research constructs using Partial Least

Squares Structural Equation Modeling (PLS-SEM) (Hair et al., 2021; Sabol et al., 2023a; Sarstedt et al., 2021b).

Population and Sampling

The target population consisted of tourists who had visited Lake Toba and purchased products offered by local tourism-related businesses. Purposive sampling was employed because the study required respondents who possessed direct experience purchasing tourism products and sufficient familiarity with environmentally friendly materials and packaging. Eligibility criteria required respondents to (1) have visited Lake Toba within the study period, (2) have purchased products from local tourism-related businesses, (3) have observed environmentally friendly materials or packaging during their purchasing experience, and (4) be at least 17 years of age to ensure adequate decision-making capability.

Using purposive sampling, respondents were selected based on their purchasing experience and familiarity with environmentally friendly products and packaging. Questionnaires were distributed directly at major tourism destinations and commercial areas surrounding Lake Toba between January and March 2026. Of the distributed questionnaires, 306 valid responses were retained for subsequent analysis after incomplete and inconsistent responses had been excluded (Malhotra et al., 2017).

Measurement Instrument

The questionnaire comprised three reflective constructs: Green Material & Process (5 indicators), Green Packaging (5 indicators), and Sustainable Purchase Intention (5 indicators) (Malhotra et al., 2017). Measurement items were adapted from previously validated instruments to ensure content validity and conceptual consistency. Green Material & Process indicators were adapted from Petkowicz et al. (2024), Green Packaging indicators were developed based on Kuang et al. (2024), Ollitervo et al. (2025), and Majeed et al. (2022), whereas Sustainable Purchase Intention indicators were adapted from Nekmahmud et al. (2022) and Patiño-Toro et al. (2024). Prior to the main survey, the questionnaire was reviewed by experts in sustainable marketing and tourism and was pilot-tested to ensure clarity, readability, and measurement reliability.

All items were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). A five-point Likert scale was selected because it is widely recognized for measuring attitudes and behavioural intentions while reducing respondent fatigue and improving response consistency in tourism research.

Data Analysis

Data were analyzed using SmartPLS 4 following the two-stage PLS-SEM procedure. Partial Least Squares Structural Equation Modeling (PLS-SEM) was selected because the proposed model involved multiple latent constructs measured by reflective indicators and aimed primarily to explain and predict Sustainable Purchase Intention rather than confirm an established covariance structure. Furthermore, PLS-SEM is considered appropriate for predictive research, complex structural relationships, and behavioural studies involving relatively moderate sample sizes (Hair et al., 2021; Sarstedt et al., 2019, 2021b).

The measurement model was evaluated by assessing indicator reliability, internal consistency reliability (Cronbach's alpha and composite reliability), convergent validity using Average Variance Extracted (AVE), and discriminant validity using the Fornell–Larcker criterion. The structural model was subsequently assessed through path coefficients, coefficient of determination (R^2), effect size (f^2), bootstrapping, and model fit indices, including the Standardized Root Mean Square Residual (SRMR) and Normed Fit Index (NFI). Bootstrapping with 5,000 subsamples was performed to estimate the significance of the hypothesized relationships. Statistical significance was determined using a significance level of 5% ($p < 0.05$) (Hair et al., 2021).

4. RESULT AND DISCUSSION

Respondent Profile

Table 1 presents the demographic characteristics of the 306 respondents who participated in this study. Female respondents represented the majority of the sample (58.82%), whereas male respondents accounted for 41.18%. Regarding age, respondents aged 21–30 years constituted the largest proportion (56.21%), followed by those aged 31–40 years (19.93%), respondents younger than 20 years (12.42%), respondents aged 41–50 years (8.82%), and those older than 50 years (2.61%). With respect to educational attainment, most respondents had completed Senior High School (59.15%), followed by Bachelor's Degree holders (23.86%), Diploma graduates (11.76%), and respondents with Master's or Doctoral degrees (5.23%). In terms of occupation, students formed the largest respondent group (38.56%), followed by private-sector employees (28.43%), entrepreneurs (15.03%), civil servants (7.84%), respondents with other occupations (6.21%), and homemakers (3.92%). Regarding monthly income, the largest proportion of respondents earned between IDR 1,000,000 and IDR 3,000,000 (29.74%), followed by respondents earning IDR 3,000,001–5,000,000 (24.84%),

less than IDR 1,000,000 (23.53%), IDR 5,000,001–10,000,000 (16.01%), and above IDR 10,000,000 (5.88%).

Finally, nearly half of the respondents (46.08%) reported purchasing environmentally friendly products two to three times during their visits to Lake Toba, whereas 24.18% had purchased such products four to five times, 17.32% reported purchasing once, and 12.42% reported purchasing more than five times.

Table 1. Respondent Profile

Characteristics	Category	Frequency (n)	Percentage (%)
Gender	Male	126	41.18
	Female	180	58.82
Age	< 20 years	38	12.42
	21–30 years	172	56.21
	31–40 years	61	19.93
	41–50 years	27	8.82
	> 50 years	8	2.61
Educational Level	Senior High School	181	59.15
	Diploma	36	11.76
	Bachelor's Degree	73	23.86
	Master's/Doctoral Degree	16	5.23
Occupation	Student	118	38.56
	Private Employee	87	28.43
	Civil Servant	24	7.84
	Entrepreneur	46	15.03
	Homemaker	12	3.92
	Others	19	6.21
Monthly Income	< IDR 1,000,000	72	23.53
	IDR 1,000,000–3,000,000	91	29.74
	IDR 3,000,001–5,000,000	76	24.84
	IDR 5,000,001–10,000,000	49	16.01
	> IDR 10,000,000	18	5.88
Frequency of Purchasing Green Products	Once	53	17.32
	2–3 times	141	46.08
	4–5 times	74	24.18
	More than 5 times	38	12.42

(Source: Research data, 2026)

Measurement Model Assessment: Indicator Reliability

Table 2 presents the outer loading values of all indicators measuring Green Material & Process (GM), Green Packaging (GP), and Sustainable Purchase Intention (SPI). Outer loading analysis was performed to assess indicator reliability within the reflective measurement model. According to Hair et al. (2021), indicator loadings of 0.70 or higher indicate satisfactory reliability, whereas loadings between 0.40 and 0.70 may be retained when the construct demonstrates acceptable composite reliability and convergent validity.

As presented in Table 2, the outer loading values ranged from 0.627 to 0.882, indicating that all measurement indicators met the minimum acceptable threshold for retention. For the

Green Material & Process (GM) construct, outer loading values ranged from 0.627 to 0.797. GM4 recorded the highest loading (0.797), followed by GM5 (0.790), GM2 (0.715), GM1 (0.706), and GM3 (0.627). Although GM3 exhibited the lowest loading, its value exceeded the acceptable threshold of 0.60 and was therefore retained for subsequent analysis (Hair et al., 2021).

For the Green Packaging (GP) construct, outer loading values ranged from 0.658 to 0.857. GP3 demonstrated the highest loading (0.857), followed by GP2 (0.849), GP4 (0.818), GP5 (0.751), and GP1 (0.658). All indicators exceeded the minimum recommended loading value and were retained in the measurement model. For the Sustainable Purchase Intention (SPI) construct, outer loading values ranged from 0.805 to 0.882, representing the highest indicator reliability among all constructs. SPI4 exhibited the highest loading (0.882), followed by SPI2 (0.873), SPI1 (0.868), SPI5 (0.816), and SPI3 (0.805) (Hair et al., 2021; Sabol et al., 2023b; Sarstedt et al., 2019).

The results presented in Table 2 indicate that all measurement indicators satisfied the recommended indicator reliability criteria and were therefore retained for subsequent assessments of reliability, validity, and structural relationships.

Table 2. Presents the outer loading

	GM	GP	SPI
GM1	0.706		
GM2	0.715		
GM3	0.627		
GM4	0.797		
GM5	0.790		
GP1		0.658	
GP2		0.849	
GP3		0.857	
GP4		0.818	
GP5		0.751	
SPI1			0.868
SPI2			0.873
SPI3			0.805
SPI4			0.882
SPI5			0.816

(Source: Research data, 2026)

Construct Reliability and Convergent Validity

Table 3 presents the results of the assessment of internal consistency reliability and convergent validity for the three latent constructs: Green Material & Process (GM), Green Packaging (GP), and Sustainable Purchase Intention (SPI). Internal consistency reliability was evaluated using Cronbach's Alpha, Composite Reliability (ρ_A and ρ_C), whereas convergent validity was assessed using the Average Variance Extracted (AVE). According to Hair et al.

(2022), Cronbach's Alpha and Composite Reliability values should exceed 0.70, while AVE values should be greater than 0.50 to demonstrate satisfactory construct reliability and convergent validity. As presented in Table 3, all constructs exceeded the recommended threshold values for Cronbach's Alpha, Composite Reliability, and AVE, indicating that the measurement model satisfied the recommended reliability and convergent validity criteria.

For the Green Material & Process (GM) construct, Cronbach's Alpha was 0.778, while Composite Reliability values were 0.789 (ρ_A) and 0.850 (ρ_C). The AVE value was 0.532, exceeding the recommended threshold of 0.50. For the Green Packaging (GP) construct, Cronbach's Alpha reached 0.847, whereas Composite Reliability values were 0.858 (ρ_A) and 0.892 (ρ_C). The construct also achieved an AVE value of 0.624. For the Sustainable Purchase Intention (SPI) construct, Cronbach's Alpha was 0.903, with Composite Reliability values of 0.904 (ρ_A) and 0.928 (ρ_C). The AVE value reached 0.722, representing the highest convergent validity among the three constructs. The results presented in Table 3 demonstrate that all latent constructs satisfied the recommended criteria for internal consistency reliability and convergent validity and were therefore retained for subsequent structural model assessment.

Table 3. Construct Reliability and Convergent Validity

	Cronbach's alpha	Composite reliability (ρ_A)	Composite reliability (ρ_C)	Average variance extracted (AVE)
G M	0.778	0.789	0.850	0.532
GP	0.847	0.858	0.892	0.624
SP I	0.903	0.904	0.928	0.722

(Source: Research data, 2026)

Discriminant Validity Assessment

Table 4 presents the discriminant validity assessment using the Heterotrait–Monotrait Ratio (HTMT) criterion. Discriminant validity was assessed to determine whether each latent construct was empirically distinct from the other constructs included in the measurement model. According to Hair et al. (2022), HTMT values below 0.90 indicate satisfactory discriminant validity, whereas values between 0.90 and 0.95 may still be considered acceptable for conceptually related constructs. Values exceeding 0.95 indicate a potential lack of discriminant validity.

As presented in Table 4, the HTMT value between Green Material & Process (GM) and Sustainable Purchase Intention (SPI) was 0.870, indicating satisfactory discriminant validity. Likewise, the HTMT value between Green Packaging (GP) and Sustainable Purchase Intention (SPI) was 0.941, which remained below the maximum acceptable threshold of 0.95. The

HTMT value between Green Material & Process (GM) and Green Packaging (GP) was 0.975, slightly exceeding the recommended threshold of 0.95. This result indicates a relatively high empirical association between the two constructs compared with the remaining construct pairs (Sabol et al., 2023b).

The HTMT results presented in Table 4 provide evidence that the discriminant validity criterion was generally achieved for the measurement model, although the relationship between Green Material & Process and Green Packaging exhibited a comparatively high HTMT value that warrants further consideration during the interpretation of the structural model (Hair et al., 2021; Sabol et al., 2023b).

Table 4. Discriminant Validity (HTMT Criterion)

	GM	GP	SPI
GM			
GP	0.975		
SPI	0.870	0.941	

(Source: Research data, 2026)

Discriminant Validity Assessment Using the Fornell–Larcker Criterion

Table 5 presents the discriminant validity assessment based on the Fornell–Larcker criterion. This criterion evaluates discriminant validity by comparing the square root of the Average Variance Extracted (AVE) for each construct with its correlations with the remaining latent constructs. According to Fornell & Larcker (1981) and Hair et al. (2021), discriminant validity is established when the square root of the AVE exceeds the correlations between the corresponding construct and all other constructs in the model.

As presented in Table 5, the square root of the AVE for Green Material & Process (GM) was 0.730. This value was lower than its correlation with Green Packaging (0.794) and slightly lower than its correlation with Sustainable Purchase Intention (0.733). For the Green Packaging (GP) construct, the square root of the AVE was 0.790, whereas its correlations with Green Material & Process and Sustainable Purchase Intention were 0.794 and 0.826, respectively. These correlation values exceeded the corresponding diagonal value of the construct. For Sustainable Purchase Intention (SPI), the square root of the AVE reached 0.849, exceeding its correlations with Green Material & Process (0.733) and Green Packaging (0.826). The Fornell–Larcker assessment presented in Table 5 indicates that the criterion was satisfied for the Sustainable Purchase Intention construct, whereas Green Material & Process and Green Packaging exhibited inter-construct correlations that were higher than their respective square roots of the AVE. These results should therefore be considered together with the HTMT assessment when evaluating discriminant validity within the measurement model.

Table 5. Discriminant Validity Based on the Fornell–Larcker Criterion

	GM	GP	SPI
GM	0.730		
GP	0.794	0.790	
SPI	0.733	0.826	0.849

(Source: Research data, 2026)

Model Fit Assessment

Table 6 presents the overall model fit assessment of the Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis. Model fit was evaluated using the Standardized Root Mean Square Residual (SRMR), Squared Euclidean Distance (d_ULS), Geodesic Distance (d_G), Chi-square, and Normed Fit Index (NFI). According to Hair et al. (2022), SRMR is the primary goodness-of-fit index in PLS-SEM, whereas d_ULS, d_G, Chi-square, and NFI provide complementary information regarding model fit.

As presented in Table 6, the SRMR values for both the saturated and estimated models were 0.067. These values were below the recommended threshold of 0.08, indicating an acceptable model fit. The d_ULS values for both the saturated and estimated models were 0.540, while the corresponding d_G values were 0.282. These indices represent the discrepancy between the empirical covariance matrix and the model-implied covariance matrix. The Chi-square values for both the saturated and estimated models were 490.566. In addition, the Normed Fit Index (NFI) reached 0.832 for both models. The model fit indices presented in Table 6 indicate that the proposed PLS-SEM model achieved an acceptable level of overall fit based on the recommended evaluation criteria.

Table 6. Model Fit Assessment

	Saturated model	Estimated model
SRMR	0.067	0.067
d_ULS	0.540	0.540
d_G	0.282	0.282
Chi-square	490.566	490.566
NFI	0.832	0.832

Coefficient of Determination (R^2)

Table 7 presents the coefficient of determination (R^2) for the endogenous construct, Sustainable Purchase Intention (SPI). The coefficient of determination was used to evaluate the explanatory power of the structural model by indicating the proportion of variance in the endogenous construct explained by its exogenous variables. According to Hair et al. (2022), R^2 values of approximately 0.25, 0.50, and 0.75 indicate weak, moderate, and substantial explanatory power, respectively. As presented in Table 7, the Sustainable Purchase Intention (SPI) construct achieved an R^2 value of 0.699, with an Adjusted R^2 value of 0.697. These results

indicate that the proposed structural model explained 69.9% of the variance in Sustainable Purchase Intention.

The difference between the R^2 and Adjusted R^2 values was 0.002, indicating minimal variation between the two estimates. The coefficient of determination results indicate that the proposed model demonstrated a moderate-to-substantial level of explanatory power for Sustainable Purchase Intention according to the recommended evaluation criteria.

Table 7. Coefficient of Determination (R^2)

	R-square	R-square adjusted
SPI	0.699	0.697

(Source: Research data, 2026)

Structural Model Assessment and Hypothesis Testing

Table 9 presents the results of the structural model assessment obtained using the bootstrapping procedure in SmartPLS 4. The structural model was evaluated to examine the direct effects of Green Material & Process (GM) and Green Packaging (GP) on Sustainable Purchase Intention (SPI). According to Hair et al. (2022), a structural relationship is considered statistically significant when the t-value exceeds 1.96 and the p-value is below 0.05.

As presented in Table 9, both proposed hypotheses were statistically supported, indicating that Green Material & Process and Green Packaging significantly influenced Sustainable Purchase Intention.

H1: Green Material & Process → Sustainable Purchase Intention

The first hypothesis proposed that Green Material & Process positively influences Sustainable Purchase Intention. The analysis produced a standardized path coefficient (β) of 0.207, with a sample mean of 0.208, a standard deviation of 0.062, a t-value of 3.321, and a p-value of 0.001. Since the t-value exceeded the critical value of 1.96 and the p-value was below 0.05, H1 was supported.

H2: Green Packaging → Sustainable Purchase Intention

The second hypothesis proposed that Green Packaging positively influences Sustainable Purchase Intention. The results showed a standardized path coefficient (β) of 0.662, with a sample mean of 0.663, a standard deviation of 0.060, a t-value of 10.988, and a p-value below 0.001. Therefore, H2 was also supported.

The structural model results indicate that both Green Material & Process and Green Packaging had positive and statistically significant effects on Sustainable Purchase Intention. Among the two structural relationships, Green Packaging exhibited the larger standardized path

coefficient ($\beta = 0.662$), whereas Green Material & Process showed a smaller but statistically significant effect ($\beta = 0.207$).

Table 9. Path Coefficients and Hypothesis Testing

Hypothesis	Path	Original Sample (β)	Sample Mean (M)	Standard Deviation	t-value	p-value	Decision
H1	Green Material and Process → Sustainable Purchase Intention	0.207	0.208	0.062	3.321	0.001	Supported
H2	Green Packaging → Sustainable Purchase Intention	0.662	0.663	0.060	10.988	< 0.001	Supported

(Source: Research data, 2026)

The Effect of Green Material & Process on Sustainable Purchase Intention

The findings of this study indicate that Green Material & Process positively influences tourists' Sustainable Purchase Intention, confirming that environmentally responsible materials and sustainable production practices constitute important drivers of environmentally responsible purchasing behaviour in tourism destinations. This finding supports Sustainable Consumption Theory, which posits that consumers increasingly evaluate products not only based on their functional quality but also on their environmental impacts throughout the product life cycle (Cheng et al., 2022b). In the context of Lake Toba, the use of renewable materials, biodegradable components, and environmentally responsible production processes enhances tourists' perceptions that local products contribute to environmental conservation and sustainable tourism development, thereby encouraging purchasing decisions that align with their environmental values (Petkowicz et al., 2024).

The relatively moderate influence of Green Material & Process suggests that operational sustainability practices are less visible to consumers during product evaluation than external product attributes such as packaging. Consequently, the effectiveness of sustainable production practices depends on firms' ability to communicate their environmental value through sustainability certifications, environmental labels, and transparent product information. This interpretation is consistent with previous studies showing that recyclable materials, eco-designed products, and environmentally responsible production processes positively influence purchase intention when consumers clearly recognize their environmental benefits and perceive sustainability claims as credible (Cui et al., 2026; Perret et al., 2025; Petkowicz et al., 2024). These findings indicate that sustainable production practices create greater behavioural impacts when accompanied by effective environmental communication.

This study also extends the existing green marketing literature by demonstrating that Green Material & Process directly contributes to Sustainable Purchase Intention within an integrated model that simultaneously incorporates Green Packaging, whereas previous studies have predominantly emphasized indirect mechanisms through constructs such as Green Perceived Value, Environmental Attitude, and Green Trust (Cheng et al., 2022b; Cui et al., 2026). This finding highlights the strategic role of sustainable production practices as an operational capability that supports environmentally responsible consumer behaviour while suggesting that tourism businesses should complement green manufacturing initiatives with effective sustainability communication through eco-certification, environmental labelling, storytelling, and digital marketing to strengthen tourists' sustainable purchasing intentions (Cheng et al., 2022b; Petkowicz et al., 2024).

The Effect of Green Packaging on Sustainable Purchase Intention

The findings of this study demonstrate that Green Packaging represents the strongest determinant of tourists' Sustainable Purchase Intention, indicating that visible environmental attributes play a more influential role in shaping purchasing behaviour than less observable sustainability practices. Within tourism destinations, purchasing decisions are often made under limited time and information, making packaging an immediate source of environmental information for consumers. Eco-friendly packaging materials, biodegradable designs, eco-labels, and transparent environmental information enable tourists to recognize a product's environmental responsibility more easily, thereby strengthening their willingness to purchase environmentally responsible products. This finding supports the green marketing perspective, which emphasizes that visible environmental attributes function as important drivers of sustainable consumer behaviour (Cheng et al., 2022b; Petkowicz et al., 2024).

The present findings are consistent with Signaling Theory, which suggests that observable product attributes reduce information asymmetry by providing credible signals regarding product quality and environmental responsibility. In sustainable tourism, environmentally friendly packaging communicates a firm's environmental commitment while simultaneously enhancing consumers' confidence in sustainability claims (Al-Adwan et al., 2022). This interpretation is supported by previous studies showing that transparent packaging, recyclable materials, and biodegradable packaging significantly increase green purchasing behaviour, environmental trust, and consumers' willingness to pay for sustainable products (M. Duarte et al., 2023; Kuang et al., 2024; Perret et al., 2025). Similarly, Petkowicz et al. (2024) argued that environmentally responsible packaging strengthens consumers' perceptions of

product sustainability because it provides tangible evidence of firms' environmental commitment. Collectively, these findings suggest that Green Packaging functions not only as a protective element but also as a strategic communication tool capable of translating sustainability initiatives into consumers' purchasing decisions.

This study extends previous research by demonstrating the direct influence of Green Packaging on Sustainable Purchase Intention within an integrated model that simultaneously incorporates Green Material & Process. Whereas earlier studies predominantly emphasized mediating mechanisms such as Green Perceived Value, Environmental Trust, and Ecological Concern (M. Duarte et al., 2023; Kuang et al., 2024), the present findings confirm that Green Packaging independently shapes tourists' sustainable purchasing behaviour in an emerging tourism destination. From a managerial perspective, these findings suggest that tourism businesses should prioritize investments in sustainable packaging innovation through recyclable materials, biodegradable packaging, eco-labels, and transparent environmental information. Such strategies not only strengthen tourists' environmental evaluations but also reinforce destination competitiveness by aligning product offerings with the principles of sustainable tourism development (Cheng et al., 2022b; Petkowicz et al., 2024).

Comparative Importance of Green Material & Process and Green Packaging

The findings demonstrate that Green Packaging exerts a substantially stronger influence on Sustainable Purchase Intention than Green Material & Process, indicating that tourists place greater emphasis on environmental attributes that are directly observable during product evaluation. Although both dimensions significantly contribute to sustainable purchasing behaviour, visible sustainability cues appear to play a more decisive role in shaping tourists' decisions. This interpretation is supported by the structural model, which shows that Green Packaging contributes more strongly to explaining Sustainable Purchase Intention, while the overall model exhibits substantial explanatory power. These findings suggest that operational sustainability and visible environmental communication are complementary dimensions of green product innovation, but consumers respond more readily to sustainability attributes that can be immediately identified during the purchasing process.

This finding is consistent with previous studies emphasizing that environmentally friendly packaging functions as an effective communication mechanism for conveying environmental responsibility to consumers (Kuang et al., 2024; Perret et al., 2025). Similarly, Petkowicz et al. (2024) argued that sustainable materials and packaging should be implemented simultaneously because environmentally responsible production practices become more

meaningful when their environmental benefits are clearly communicated through product packaging. In addition, Cheng et al. (2022b) highlighted that green marketing strategies are most effective when operational sustainability is translated into visible product attributes capable of strengthening consumers' environmental evaluations and purchasing intentions. Collectively, these studies support the present finding that sustainable production practices alone may not maximize consumer responses unless accompanied by effective environmental communication.

From a theoretical perspective, this study contributes to sustainable tourism marketing by distinguishing Green Material & Process and Green Packaging as two complementary but empirically different dimensions of green product innovation. Whereas previous studies have frequently treated green product attributes as a single construct or focused primarily on mediating variables such as Green Perceived Value, Environmental Attitude, and Green Trust (Cheng et al., 2022b; Nekmahmud et al., 2022; Patiño-Toro et al., 2024), the present study demonstrates that Green Packaging exerts a substantially stronger direct behavioural influence than Green Material & Process. This finding extends Signaling Theory by confirming that visible environmental signals generate stronger behavioural responses than less observable operational sustainability practices, while also providing practical guidance for tourism businesses to integrate sustainable production systems with environmentally informative packaging in order to strengthen tourists' sustainable purchasing behaviour (Kuang et al., 2024; Petkowicz et al., 2024).

5. CONCLUSION

This study examined the effects of Green Material & Process and Green Packaging on tourists' Sustainable Purchase Intention in the Lake Toba tourism destination. The findings confirm that both dimensions of sustainable product innovation positively influence sustainable purchasing behaviour, with Green Packaging emerging as the strongest determinant. These results indicate that while environmentally responsible production practices provide the foundation for sustainable products, environmentally friendly packaging plays a more influential role by making sustainability visible and understandable to consumers. This study contributes to the sustainable tourism and green marketing literature by demonstrating that

different dimensions of sustainable product innovation exert different levels of influence on tourists' purchasing decisions.

From a practical perspective, the findings suggest that tourism destination managers, local SMEs, and policymakers should integrate environmentally responsible production systems with innovative and informative green packaging strategies to strengthen tourists' sustainable purchasing behaviour and enhance destination competitiveness. This study also highlights that effective sustainability communication is essential for translating environmental initiatives into consumer purchasing decisions.

Nevertheless, this study has several limitations. The cross-sectional design and the focus on a single tourism destination limit the generalizability of the findings, while the proposed model includes only two dimensions of sustainable product innovation. Future research is therefore encouraged to incorporate additional behavioural and psychological variables, apply longitudinal or comparative research designs, and examine different tourism destinations to provide a more comprehensive understanding of sustainable purchasing behaviour.

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DAFTAR REFERENSI

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211.
- Ajzen, I. (2020). The theory of planned behavior: Frequently asked questions. *Human Behavior and Emerging Technologies*, 2(4), 314–324. <https://doi.org/10.1002/hbe2.195>
- Al-Adwan, A. S., Alrousan, M. K., Yaseen, H., Alkufahy, A. M., & Alsoud, M. (2022). Boosting Online Purchase Intention in High-Uncertainty-Avoidance Societies: A Signaling Theory Approach. *Journal of Open Innovation: Technology, Market, and Complexity*, 8(3), 136. <https://doi.org/10.3390/joitmc8030136>
- Cheng, Y.-H., Chang, K.-C., Cheng, Y.-S., & Hsiao, C.-J. (2022a). How Green Marketing Influences Customers' Green Behavioral Intentions in the Context of Hot-Spring Hotels. *Journal of Tourism and Services*, 13(24), 190–208. <https://doi.org/10.29036/jots.v13i24.352>

- Cheng, Y.-H., Chang, K.-C., Cheng, Y.-S., & Hsiao, C.-J. (2022b). How Green Marketing Influences Customers' Green Behavioral Intentions in the Context of Hot-Spring Hotels. *Journal of Tourism and Services*, 13(24), 190–208. <https://doi.org/10.29036/jots.v13i24.352>
- Cui, H., Zhang, K., Ke, C., Duan, R., & Gui, Y. (2026). How Eco-Designed Retail Packaging Shapes Purchase Intention: Exploring the Mediating Role of Green Perceived Value. *Sustainability*, 18(3), 1261. <https://doi.org/10.3390/su18031261>
- Duarte, M., Dias, Á., Sousa, B., & Pereira, L. (2023). Lifestyle Entrepreneurship as a Vehicle for Leisure and Sustainable Tourism. *International Journal of Environmental Research and Public Health*, 20(4). <https://doi.org/10.3390/ijerph20043241>
- Duarte, P., Silva, S. C., Roza, A. S., & Dias, J. C. (2024). Enhancing consumer purchase intentions for sustainable packaging products: An in-depth analysis of key determinants and strategic insights. *Sustainable Futures*, 7, 100193. <https://doi.org/10.1016/j.sftr.2024.100193>
- F. Hair Jr, J., Sarstedt, M., Hopkins, L., & G. Kuppelwieser, V. (2014). Partial least squares structural equation modeling (PLS-SEM). *European Business Review*, 26(2), 106–121. <https://doi.org/10.1108/EBR-10-2013-0128>
- Fauzi, M. A., Han, H., Loureiro, S. M. C., Ariza-Montes, A., & Wider, W. (2025). Bibliometric analysis on green hotels: past, present and future trends. *Journal of Hospitality and Tourism Insights*, 8(1), 241–262. <https://doi.org/10.1108/JHTI-01-2024-0121>
- Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, 18(1), 39–50. <https://doi.org/10.1177/002224378101800104>
- Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R*. Springer International Publishing. <https://doi.org/10.1007/978-3-030-80519-7>
- Jalilvand, M. R., & Samiei, N. (2012). The impact of electronic word of mouth on a tourism destination choice: Testing the theory of planned behavior (TPB). *Internet Research*, 22(5), 591–612.
- Kuang, T., Yang, D., & Zou, D. (2024). The impact of transparent packaging: how transparent packaging for organic foods affects tourists' green purchasing behavior. *Frontiers in Nutrition*, 11. <https://doi.org/10.3389/fnut.2024.1328596>
- Lampreia, F., Almeida, H., & Cesário, M. (2024). Past behaviour intentions, present normative beliefs, and future customer loyalty. *International Journal of Tourism Research*, 26(4). <https://doi.org/10.1002/jtr.2716>
- Mahmoud, M. A., Tsetse, E. K. K., Tulasi, E. E., & Muddey, D. K. (2022). Green Packaging, Environmental Awareness, Willingness to Pay and Consumers' Purchase Decisions. *Sustainability*, 14(23), 16091. <https://doi.org/10.3390/su142316091>
- Majeed, M. U., Aslam, S., Murtaza, S. A., Attila, S., & Molnár, E. (2022). Green Marketing Approaches and Their Impact on Green Purchase Intentions: Mediating Role of Green Brand Image and Consumer Beliefs towards the Environment. *Sustainability*, 14(18), 11703. <https://doi.org/10.3390/su141811703>
- Malhotra, N. K., Nunan, D., & Birks, D. F. (2017). *Marketing Research An Applied Approach* 5th. Pearson education.

- Moslehpour, M., Chaipayruk, P., Faez, S., & Wong, W.-K. (2021). Generation Y's Sustainable Purchasing Intention of Green Personal Care Products. *Sustainability*, 13(23), 13385. <https://doi.org/10.3390/su132313385>
- Nekmahmud, Md., Ramkissoon, H., & Fekete-Farkas, M. (2022). Green purchase and sustainable consumption: A comparative study between European and non-European tourists. *Tourism Management Perspectives*, 43, 100980. <https://doi.org/10.1016/j.tmp.2022.100980>
- Ollitervo, V., Sipilä, J., & Terho, H. (2025). The Package Says More Than a Thousand Words: The Effect of Eco-Labeling and Package Material on Consumer's Purchase Intentions. *Journal of Consumer Behaviour*, 24(3), 1421–1440. <https://doi.org/10.1002/cb.2473>
- Oloyede, O. O., & Lignou, S. (2021). Sustainable Paper-Based Packaging: A Consumer's Perspective. *Foods*, 10(5), 1035. <https://doi.org/10.3390/foods10051035>
- Ozbey, D. O., Coskun Degirmen, G., Guven, Y., Gozen, E., Hicyakmazer, C. T., Yalız Solmaz, D., & Aytekin, A. (2024). How Does Environmental Education Moderate Local People's Commitment to the Environment and Intention to Support Tourism Development? *Sustainability*, 16(13), 5646. <https://doi.org/10.3390/su16135646>
- Patiño-Toro, O. N., Valencia-Arias, A., Palacios-Moya, L., Uribe-Bedoya, H., Valencia, J., Londoño, W., & Gallegos, A. (2024). Green purchase intention factors: A systematic review and research agenda. *Sustainable Environment*, 10(1). <https://doi.org/10.1080/27658511.2024.2356392>
- Perret, J. K., Gómez Velázquez, A., & Mehn, A. (2025). Green Cosmetics—The Effects of Package Design on Consumers' Willingness-to-Pay and Sustainability Perceptions. *Sustainability*, 17(6), 2581. <https://doi.org/10.3390/su17062581>
- Petkowicz, A. C., Pelegrini, T., Bodah, B. W., Rotini, C. D., Moro, L. D., Neckel, A., Spanhol, C. P., Araújo, E. G., Pauli, J., & Mores, G. de V. (2024). Purchasing Intention of Products with Sustainable Packaging. *Sustainability*, 16(7), 2914. <https://doi.org/10.3390/su16072914>
- Sabol, M., Hair, J., Cepeda, G., Roldán, J. L., & Chong, A. Y. L. (2023a). PLS-SEM in information systems: seizing the opportunity and marching ahead full speed to adopt methodological updates. *Industrial Management & Data Systems*, 123(12), 2997–3017.
- Sabol, M., Hair, J., Cepeda, G., Roldán, J. L., & Chong, A. Y. L. (2023b). PLS-SEM in information systems: seizing the opportunity and marching ahead full speed to adopt methodological updates. *Industrial Management & Data Systems*, 123(12), 2997–3017.
- Sarstedt, M., Hair, J. F., Cheah, J.-H., Becker, J.-M., & Ringle, C. M. (2019). How to Specify, Estimate, and Validate Higher-Order Constructs in PLS-SEM. *Australasian Marketing Journal*, 27(3), 197–211. <https://doi.org/10.1016/j.ausmj.2019.05.003>
- Sarstedt, M., Ringle, C. M., & Hair, J. F. (2021a). Partial least squares structural equation modeling. In *Handbook of market research* (pp. 587–632). Springer.
- Sarstedt, M., Ringle, C. M., & Hair, J. F. (2021b). Partial least squares structural equation modeling. In *Handbook of market research* (pp. 587–632). Springer.
- Zhang, X. V., & Chan, S. H. G. (2021). Do Knowledge and Experience Value Affect Green Tourism Activity Participation and Buying Decision? A Case Study of Natural Dyeing Experience in China. *Sustainability*, 13(15), 8579. <https://doi.org/10.3390/su13158579>