(Online) ISSN 2712-0554
**Heritage and Sustainable Development** *Original Research*
Vol. 8, No. 1, 2026, pp.463-484
https://doi.org/10.37868/hsd.v8i1.1964

# The impact of green packaging on green purchase intention: evidence from the Mekong Delta

**Tran Trung Chuyen[1]*, Phan Tran Xuan Trinh[2], Tran Thanh Huy[3], Nguyen Thi Thu Tam[4], Nguyen Thanh Van[5], Le Thi Thanh Thuy[6], Nguyen Thi My Linh[7], Nguyen Ngoc Phuong Nhi[8]**
[1,4,5,6] Faculty of Business Administration-Marketing, Nam Can Tho University, Vietnam
[2,3] Faculty of Technology and Engineering, Nam Can Tho University, Vietnam
[7] Faculty of Architecture - Construction and Environment, Nam Can Tho University, Vietnam
[8] Media Communications Department, Nam Can Tho University, Vietnam

*Corresponding author: ttchuyen@nctu.edu.vn

Received Jan. 18, 2025
Revised Apr. 9, 2025
Accepted Apr. 16, 2025
Online Apr. 21, 2025

**Abstract**

This study investigates how green packaging (GP) shapes green purchase intention (GPI) among consumers in Vietnam's Mekong Delta, emphasizing the roles of green perceived quality (PQ), green perceived value (PV), green perceived risk (PR), green satisfaction (GS), and the moderating effect of green loyalty (GL). Data were collected from 379 valid respondents and analyzed using PLS-SEM in SmartPLS with bootstrapping. The results confirm that green packaging functions as a salient green signal: it positively influences green perceived quality and strongly enhances green perceived value, while reducing green perceived risk. Green perceived quality further increases green satisfaction and green perceived value and decreases green perceived risk. In turn, green satisfaction and green perceived value drive green purchase intention, whereas green perceived risk undermines both green satisfaction and green purchase intention. Importantly, green loyalty significantly moderates the effects of green perceived value, green satisfaction, and green perceived risk on green purchase intention, indicating that stronger green loyalty amplifies the translation of perceived value and satisfaction into purchase intention and alters consumers' sensitivity to perceived risk.



*Keywords*: Green packaging, Green purchase intention, Green perceived value, Green satisfaction, Green loyalty.

## 1. Introduction

Today, environmental concerns are widely spread, driven by issues such as pollution, global warming, and the generation of unrecyclable waste. As global threats grow and sustainability becomes more urgent, industries are reevaluating their practices, especially regarding packaging [1]. Current packaging materials are scrutinized for their high material use and pollution emissions [2]. Statistics show that packaging is the largest plastic application sector, making up about a third of global plastic production and nearly half of plastic waste [3]. Vietnam also faces significant risks from plastic waste. The Ministry of Natural Resources and environment reports that about 1.8 million tons of plastic waste are released into the environment annually, with 0.28-0.73

million tons reaching the sea. Only 27% of this waste is recycled or reused [4]. Plastic pollution poses a serious challenge to the sustainable development of the Mekong Delta, Vietnam's strategic economic, social, and environmental region. This region is vital for food security and exports but faces environmental challenges, particularly from pollution of plastic waste, due to its low altitude and vulnerability to climate change.

While plastic packaging offers many advantages, such as longer shelf life, protection, hygiene, and low costs, it also poses significant environmental problems. The widespread use of disposable plastics, especially single-use items like bags and bottles, highly contributes to pollution [2]. These issues not only harm a company's sustainable image but also diminish consumers' willingness to purchase. In Vietnam, particularly in the Mekong Delta, GP is driven by legal requirements, consumer expectations, and greater business awareness. Consumer preferences are shifting towards products from companies with strong social responsibility, sustainability, and quality [5], [6]. According to Linh [7], about 72% of consumers are willing to pay more for eco-friendly packaging, and 92.1% pay attention to environmental impact, which increased 12.5 percentage points from the previous year. Consequently, environmental protection will influence consumer choices, which consumers now tend to choose brands committed to sustainability, especially as GP gains popularity [8], [9].

GP refers to businesses that use environmentally friendly materials and manufacturing methods to create products that minimize energy use and environmental impact [10], [11]. The demand for GP reflects consumers' appreciation for its environmental benefits. It can be seen that environmental considerations increasingly influence buying decisions; consumers prefer brands that adopt sustainable practices [12]. Therefore, businesses can implement GP to enhance sustainability and attract customers [13]. Despite the importance of environmental protection and consumer behavior, research on the influence of GP is still limited. Earlier studies mainly focused on factors such as demographics, knowledge, price, and product type that drive the adoption of sustainable purchasing [8]. Others also explored how different packaging designs impact perceptions of sustainability, while a few studies examined how perceptions of various packaging types affect attitudes and purchase intentions [14]. Besides, the Mekong Delta, a strategically important region for Vietnam’s food security and exports, simultaneously faces acute environmental pressure from plastic waste, low-altitude exposure, and climate vulnerability. These characteristics make the region a particularly relevant setting for examining how consumers respond to green packaging under both environmental pressure and rising sustainability expectations. However, there remains a lack of clarity about how GP influences consumer purchasing decisions, particularly in Vietnam's Mekong Delta. This study aims to build on previous research by exploring the relationship between GP and consumer purchase intentions and to address specific research questions.

RQ1: How does GP influence GPI through green perceived quality, green perceived value, green perceived risk, and green satisfaction among consumers in the Mekong Delta?

RQ2: How does GL moderate the effects of green perceived value, green satisfaction, and green perceived risk on GPI in the Mekong Delta context?

This study examines how GP influences GPI of consumers in the Mekong Delta, considering the mediating roles of perceived value, risk, quality, and customer satisfaction. The core logic of the suggested model is derived from the cognition-affection-behavior theory, which serves as the primary foundation for this investigation. Green packaging is thought to be a market indication that influences buyers' perceptions. This reasoning is supported by the value-belief-norm perspective, which explains why customers who have higher environmental values are more responsive to green cues. In the meanwhile, the RBV/NRBV and institutional theory offer contextual support by elucidating why businesses embrace green packaging as a strategic competence as well as a legitimate reaction. Our findings explore how GP influences purchase decisions, as supported by expert interviews and enterprise surveys. The results emphasize the benefits of GP in boosting consumer intent and offer businesses insights into how to design environmentally friendly packaging. The paper is organized as follows: section 2 discusses the theoretical framework for GP; section 3 describes the research methodology; section 4 presents the survey results; section 5 discusses the findings; and section 6 presents the study's conclusions.

## 2. Literature review and research hypotheses

### 2.1. Literature review

#### 2.1.1. Green packaging

Packaging is essential for protecting products, optimizing logistics, and boosting sales. While its primary role is safeguarding contents, packaging also shapes the first impression of consumers about a product [10], [15]. It provides all the necessary information about quality and brand identity. Therefore, developing eco-friendly packaging is vital for the circulation of goods [16]. Some researchers describe a green package as one made entirely from natural plant-based materials, capable of reuse or recycling, biodegradable, and supportive of sustainable development [11], [17]. Similarly, Mudgal et al. [9] define GP as recyclable, environmentally friendly materials that reduce waste, can be reused, composted, or repurposed.

Eco-friendly packaging is particularly attractive to businesses seeking to lower their environmental footprint without compromising product safety or transportation efficiency [10]. Its core is eco-friendliness, utilizing resource-saving technologies throughout its lifecycle, from design and development to production, use, and recycling, with minimal or no environmental or human health impacts. This includes biodegradable, recyclable, or recycled materials, as well as efforts to reduce energy and water use during manufacturing [11]. Common materials include paper, cardboard, jute, natural fibers, recycled plastics, and bioplastics. The goal of GP is to minimize waste compared to traditional packaging [9]. Overall, GP emphasizes reducing, reusing, and recycling resources to create sustainable solutions for businesses and consumers [15], [16].

GP should be viewed from the perspective of the circular economy in addition to its practical use. Reducing the use of virgin materials, prolonging the life of products and materials, and recovering value through reuse, recycling, and regeneration are all key components of the circular economy [18]. In this way, green packaging encompasses more than just recyclable or biodegradable materials; it also represents a wider shift away from the linear “take-make-dispose” model and toward resource-efficient, closed-loop production and consumption processes [19]. This viewpoint is in line with Sustainable development goal 12, which encourages ethical production and consumption. As a result, green packaging can be seen as a useful way for businesses to support more sustainable material cycles, responsible sourcing, and waste reduction [19], [20].

#### 2.1.2. Institutional theory and the adoption of green packaging

The adoption of green packaging strategies by businesses can also be explained by institutional theory. According to this viewpoint, organizational decisions are influenced by institutional legitimacy demands in addition to efficiency considerations. Adoption of green packaging may result from normative pressures from professional standards and sustainability expectations, coercive pressures from environmental regulations and waste management requirements, and mimetic pressures from businesses copying rivals or well-known brands that are thought to be environmentally conscious [21], [22]. These pressures can be particularly significant in emerging markets since businesses frequently conform with changing regulatory frameworks, market expectations, and societal conventions surrounding sustainability in order to gain legitimacy. GP can, therefore, be used as an institutional reaction for external calls for environmental responsibility rather than only as a technological packaging option [23]. Because externally driven green packaging practices become apparent marketplace signals that influence customers' perceived quality, perceived value, and perceived risk, this institutional viewpoint enhances the consumer-side framework of the current study.

#### 2.1.3. Resource-based view and natural resource-based view

Furthermore, the resource-based view (RBV) and the natural resource-based view (NRBV) offer a strategic justification of how green packaging might benefit businesses. According to RBV, companies that have valuable, uncommon, and challenging-to-replicate resources and competencies can maintain a competitive advantage. When it comes to sustainability, green packaging can be more than just an operational change; it can reflect special design skills, partnerships with suppliers, material expertise, environmental reputation, and

ethical sourcing practices that are difficult for rivals to imitate [17], [24]. This reasoning is extended by the NRBV, which contends that skills related to sustainable development, product stewardship, and pollution control can become strategic assets. According to this viewpoint, investments in recyclable materials, eco-friendly packaging, traceable sourcing, and environmentally conscious packaging innovation may improve market differentiation and environmental performance [17], [25].

### 2.1.4. Cognition–affection–behavior theory of attitude

An attitude reflects an evaluation of a psychological object, which comprises three components: affective, cognitive, and behavioral. For example, attitudes toward the environment are shaped by a person's beliefs, which include cognitive, affective, and behavioral aspects that can influence those attitudes [26], [27]. Among those, the cognitive component might involve beliefs and thoughts about environmental protection, while the affective component involves positive or negative emotions toward environmentally friendly actions. The behavioral component is a tendency of an individual to act toward an object, such as protecting the environment [28]. The cognition–affection–behavior theory of attitude system theory initially described how personality traits affect behavior, suggesting that individual characteristics drive behaviors. These cognitive-affective units are interconnected and organized within a stable network of cognitions and emotions specific to each person [26], [29].

The cognition–affection–behavior theory of attitude holds that these components are interconnected and influence one another [30]. Attitude formation follows a three-tiered hierarchy: consumers' knowledge or beliefs about a product (cognition), an emotional response of liking or disliking (affect), and this emotion shaping their decision to buy or use the product (behavior). Research based on this model has laid the groundwork for understanding how cognitive and affective attitudes relate to behavior [31]. For instance, in marketing, it helps businesses understand how consumers develop attitudes toward a brand or product, enabling tailored communication. In education and management, it helps understand how to change employees' or students' attitudes and actions [32]. In GP, Pan et al. [15] identified perceptual attitudes that predict consumers' green purchasing decisions. They found that positive cognitive attitudes toward green plastic products enhance emotional responses, which, in turn, boost young customers' likelihood of repurchasing [13].

### 2.1.5. Value-belief-norm theory

The value–belief–norm theory suggests that norm-driven actions stem from adherence to personal values, beliefs about threats to valued entities, and the belief that individual actions can mitigate these threats and restore values. It was developed to explain environmental movements [33]. Majeed et al. [34] note that this theory is based on the norm activation theory, which combines value theory with the new environmental paradigm. It focuses on negative consequences and a sense of responsibility, influencing psychological motivation through moral and emotional mediators to encourage environmentally friendly behavior. The framework consists of three dimensions: values, beliefs, and personal norms [35], [36].

Specifically, values are core principles that guide a person's actions. In environmental contexts, these often include altruistic, biospheric, and egoistic values [37]. Altruistic values prioritize the well-being of others and other species, biospheric values highlight the intrinsic worth of ecosystems and nature, and egoistic values are centered on personal benefits and convenience, often negatively influencing pro-environmental behavior. The second element is based on beliefs that link abstract values to specific behaviors [36], [38]. In this framework, two central beliefs are awareness of consequences and ascription of responsibility. Awareness of consequences includes recognizing environmental issues as threats to what individuals value, such as their health or ecosystems. Ascription of responsibility is related to the belief that individuals or groups are responsible for environmental impacts and can help reduce threats through action [35], [37]. The final element, personal norms, are moral obligations that individuals impose on themselves to act or abstain from certain behaviors. When values and beliefs about consequences and responsibility are activated, they foster a sense of moral duty that encourages individuals to behave accordingly [33], [39].

#### 2.1.6. Green purchase intention

Ma & Wang [40] describe GPI as the likelihood and willingness of a person to prefer eco-friendly products over traditional ones during their purchase decisions. Moreover, consumers tend to buy green products to protect the environment or avoid damaging it [41]. Zhuang et al. [42] state that GPI refers to consumers' readiness to buy green products and helps estimate consumer green demand. According to Long et al. [43], GPI refer to consumers' willingness to pay more for eco-friendly products or brands.

Green consumers usually buy products when they see key green features, such as those that reduce pollution and support sustainability [12]. Over time, consumers have become increasingly concerned about environmental issues and are more willing to purchase green products. Some researchers observed that most consumers continued to buy green products even during economic downturns [14], [39]. Han et al. [41] reported that consumers who support the green idea or have green purchasing intentions are willing to spend more on organic or green-packaged products. Studies by Shehawy and Khan [44] emphasize the vital role of GPI in boosting demand for green packaged goods. In GP, GPI is especially important because it makes customers more likely to choose products with eco-friendly packaging over traditional ones [14]. This study shows that GPI influences consumers' choice of GP.

#### 2.1.7. From values and beliefs to cognition, affection, and behavior

It is possible to combine the two theoretical stances employed in this investigation into a single explanatory chain. According to the value-belief-norm theory, pro-environmental values and beliefs increase consumers' awareness of the environmental effects of market decisions and their responsiveness to sustainability-related cues, which explains the distal basis of green behavior. These pre-existing values and ideas influence customers' cognitive interpretation of green packaging, especially in terms of perceived quality, perceived value, and perceived risk [45], [46]. These cognitive assessments then produce affective reactions, which in this case are symbolized by green satisfaction. These reactions then have an impact on behavioral outcomes, such as the intention to make green purchases. In this way, values and beliefs function as an underlying motivational logic that explains the transition from cognition to affection and from affection to behavior rather as direct predictors of the current model.

### 2.2. Research hypotheses

#### 2.2.1. Relationships between green packaging, green perceived value, green perceived quality, and green perceived risk

A green consumer tends to evaluate packaging to see if it can help reduce environmental issues. Several studies highlight the role of packaging information in decision-making [45]. Researchers noted that packaging-related pollution can evoke a sense of environmental risk among consumers. For instance, purchasing products with plastic packaging can heighten perceived environmental hazards [2]. Consequently, GP demonstrates its value when consumers recognize its environmental benefits, thereby enhancing perceived value and diminishing perceived risks [13]. Additionally, adopting GP can boost consumers' perceptions of green product quality and contribute to sustainable development. This creates a perception of green quality, reflecting the product's reliability, performance, safety, and value [9], [16]. Based on this, the following hypotheses are proposed:

*H1*: GP negatively impacts PR.
*H2*: GP positively impacts PV.
*H3*: GP positively impacts PQ.

#### 2.2.2. Relationships between green perceived quality, green perceived risk, green perceived value, and green satisfaction

In sustainable development, product quality, evaluated by sustainability features such as natural ingredients, energy efficiency, and eco-friendly packaging, boosts consumers' perceived green value, supporting the idea that perceived green quality positively affects perceived green value [14]. Additionally, PQ generally reduces PR, meaning that higher green quality correlates with lower perceived risk because consumers expect

environmentally friendly products to cause fewer negative impacts [33], [38]. For instance, a consumer who considers a product to be high in green quality is less worried about environmental harm (perceived risk is low). Thus, higher perceived green quality indicates that a product truly meets its environmental claims, reducing concerns about greenwashing or hidden adverse effects and thereby lowering PR. Conversely, low perceived green quality can increase perceived risk, as consumers may doubt the product's environmental claims or performance [46]. Moreover, perceived green quality significantly influences customer satisfaction [47]. Prior research shows a positive link between PQ and GS, with perceived quality serving as evidence of the vendor's environmental competence, leading to higher post-purchase satisfaction [48], [49]. Based on this, the study proposes the following hypotheses in the context of environmental management:

*H4*: PQ negatively impacts PR.
*H5*: PQ positively impacts PV.
*H6*: PQ positively impacts GS.

### 2.2.3. Relationships between green perceived risk, green satisfaction, and green purchase intention

Risk perceptions are strongly linked to negative consumption-related emotions, which in turn directly influence satisfaction. Emotions like anxiety and worry stemming from perceived risk can reduce satisfaction [50]. Therefore, perceived risk tends to diminish customer satisfaction. When perceived risk is high, consumers face greater uncertainty in their purchase decisions [15], [49]. Zhuang et al. [42] found that perceived risk negatively impacts purchase intention. A previous study indicates that reducing risk increases purchase likelihood, as perceived risk is negatively related to purchase behavior [51]. This aligns with the cognition–affection–behavior model, in which consumers who are aware of environmental risks tend to prefer green products, thereby influencing their intention to use GP [27], [42]. In summary, perceived risk adversely affects purchase intention. This research employs GPI as a proxy for GSion and suggests that perceived environmental risk negatively influences GS in environmental management. The following hypotheses are proposed:

*H7*: PR negatively impacts GS.
*H8:* PR negatively impacts GPI.

### 2.2.4. Relationships between green perceived value, green satisfaction, and green purchase intention

Perceived value not only is a key to building long-term customer relationships but also significantly impacts GS and GPI [9]. It is connected to the value-belief norm theory, which highlights mechanisms supporting consumers' commitment to green consumption, considering not only personal values but also environmental impacts [35], [36]. Yan et al. [52] argue that perceived green value positively affects consumer satisfaction with eco-friendly products. Similar results confirm that perceived green value correlates positively with GS [14], [47]. Furthermore, perceived value can increase purchase intention because green consumers consistently prefer eco-friendly products, making perceived green value a key factor in green purchase decisions [49], [53]. Thus, PV can stimulate GPI. Based on these insights, this study formulates the following hypotheses:

*H9*: PV positively impacts GS.
*H10*: PV positively impacts GPI.

### 2.2.5. Relationships between green satisfaction and green purchase intention

Satisfied consumers are more likely to buy such products [39], [47]. Studies by Zhuang et al. [42] show that GS positively influences the intention to buy green products. Consumer satisfaction with eco-friendly items may stem from the belief that they help in the process of environmental conservation [47]. Overall, these findings suggest that satisfied consumers tend to choose and repeatedly buy environmentally friendly products.

*H11*: GS positively impacts GPI.

### 2.2.6. Moderating effect of green loyalty

In this study, GL serves as a moderating variable to examine how PV, PR, GS, and GPI relate in the context of environmental protection. The moderating role of GL indicates that a customer's existing commitment to eco-

friendly brands can amplify or diminish the impact of other green factors [15]. Typically, when loyalty is low or absent, satisfaction, perceived value, and perceived risk directly influence commitment and purchase intent. However, when loyalty is high, consumers may retain their commitment and purchase intention despite dissatisfaction or low perceived value [54]. Prior studies highlight consumer loyalty as a key predictor of purchase intention [55], [56]. Based on these insights, the following hypotheses in the green purchase context are proposed:

*H12a*: GL positively moderates the effect of PV on GPI.
*H12b*: GL positively moderates the effect of GS on GPI.
*H12c*: GL positively moderates the relationship between PR and GPI such that the negative effect of PR on GPI becomes weaker at higher levels of GL.

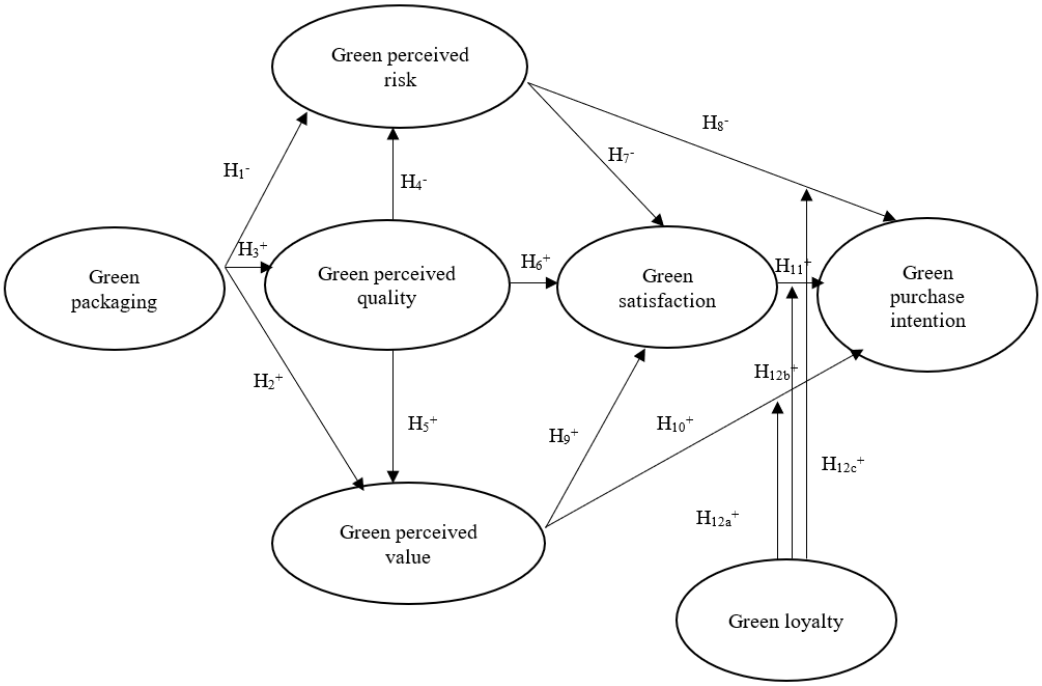


Figure 1. Proposed research model

## 3. Methodology

### 3.1. Study design

This research includes a mixed methods approach combining qualitative and quantitative techniques to establish a solid theoretical basis while testing causal relationships within the proposed model. The qualitative stage reviews both domestic and international literature on green packaging and green consumption behavior to construct the conceptual framework and hypotheses regarding how GP affects GPI through perceptual constructs such as PQ, PV, and PR. It also examines the moderating effect of GL on the PV–GPI, GS–GPI, and PR–GPI relationships. In the quantitative phase, the model is tested using PLS-SEM in SmartPLS, which is suitable for analyzing relationships among latent variables and mediation effects [57].

### 3.2. Sample design

Customers who had previously purchased and utilized packaged products and those who lived, studied, or worked in the Mekong Delta were the targeted group (Can Tho, Vinh Long, Ca Mau, An Giang and Dong Thap). Respondents had to be familiar with packaged products and able to assess packaging-related characteristics such recyclability, biodegradability, reduced plastic use, and environmental labels because the study's focus was on consumer perceptions of green packaging. Purposive screening criteria were used in a non-probability convenience sampling method. This strategy was deemed suitable since the target audience was geographically scattered throughout the Mekong Delta and there was no thorough sampling frame of consumers in the area.

Furthermore, rather than generating a statistically representative estimate for the whole population, the study sought to investigate the connections between latent constructs in the suggested model. Thus, it was appropriate for the research goal to choose available respondents who fulfilled the predetermined eligibility requirements. After removing incomplete or poor-quality responses, 379 valid observations were taken into consideration for the analysis out of the 392 responses that were gathered. The PLS-SEM and bootstrap testing requirements are met by this sample size. The observation structure includes all genders, ages, education, occupations, and incomes, which are balanced and appropriate for the analysis.

### 3.3. Data collection

A standardized questionnaire was used to gather data, asking participants to describe their real-life shopping experiences. In order to increase perceptual consistency, respondents had received an explanation regarding green packaging, including characteristics like reduced plastic consumption, recyclability, biodegradability, and environmental labels, prior to answering the primary questions. Prior to analysis, questionnaires that lacked important information or showed signs of careless answers were eliminated. Responses were verified for completeness and severity.

### 3.4. Measurement scales

The concepts of GP, PQ, PV, PR, GL, and GPI were measured using a multivariate observational scale adapted from prior research, customized for the Vietnamese context, and linguistically standardized to enhance clarity and cultural compatibility. The measurement used a five-point Likert scale from 1 (“strongly disagree”) to 5 (“strongly agree”). Before the formal survey, the questionnaire was calibrated using expert feedback and semantic review to reduce bias. The scales were reviewed and pre-tested by the research team with the target audience to improve clarity, expression and contextual appropriateness before conducting the official survey. In the formal analysis, reliability and validity were evaluated using factor loadings, Cronbach’s alpha, CR, and AVE; discriminant validity was assessed using the HTMT and Fornell–Larcker criteria; and multicollinearity was controlled for via VIF [57].

### 3.5. Data analysis

Descriptive statistics were analyzed in SPSS, and the measurement and structural models were estimated in SmartPLS using a two-step process. First, the measurement model was evaluated for reliability and convergent validity (factor loadings, CA, CR, AVE), discriminant validity (HTMT, Fornell–Larcker), and multicollinearity (VIF). Secondly, the structural model was tested through path coefficients, $R^2$, $f^2$, and bootstrap tests. Statistical significance was assessed using t-statistics and p-values, with a threshold of $p < 0.05$, to determine the strong influence of GP on GPI mediated by PQ, PV, and PR in the Mekong Delta context.

## 4. Results

### 4.1. Descriptive statistics of the sample

The results in Table 1 show that demographic groups are well-distributed by gender, age, education, employment sector, and income. It presents a nearly even gender split, with males and females accounting for 50.4% and 49.6%, respectively. This distribution helps reduce gender bias while analyzing how green packaging impacts green purchase intention.

The sample covers all age groups, including 19.8% under 20, 26.6% between 20 and 30, 26.6% between 30 and 40, and 28.5% over 40. Although the group above 40 is the largest, the differences among all age groups are not significant. It also indicates the diversity across various stages of the consumer lifecycle. In this research, rather than focusing on a single age group, the inclusion of all age groups reflects behavior of the consumers in the Mekong Delta.

Based on the sample of education level, 45.6% hold a bachelor’s degree and 23.0% hold a master’s degree. Moreover, about 28.2% graduated from high school, and 3.2% have a doctoral degree. This suggests that the targeted group of people is relatively highly educated, which is an advantage for green consumption research.

Higher education often provides easier access to information by improving understanding of eco-packaging and strengthening the ability to assess environmentally related product features.

The sample covers all occupations in the category, with students accounting for the highest percentages at 27.2%. The "other" occupation accounts for 22.7%, meaning that some respondents fall outside the defined groups. It reflects the differences in the labor market in the Mekong Delta. Other occupations include education and educational institutions at 15.3%, services at 14.2%, information technology and e-commerce at 11.3%, and manufacturing at 9.3%.

Table 1. Descriptive statistics of survey participants (N = 379)

| Variables | Frequency | Percent | Variables | Frequency | Percent |
|---|---|---|---|---|---|
| Gender | | | Field of work/occupation | | |
| Male | 191 | 50.4% | Student | 103 | 27.2% |
| Female | 188 | 49.6% | Education/educational institution | 58 | 15.3% |
| Age | | | IT/E-commerce | 43 | 11.3% |
| Under 20 | 75 | 19.8% | Service industry | 54 | 14.2% |
| From 20 to 30 | 101 | 26.6% | Manufacturing | 35 | 9.3% |
| From 30 to 40 | 95 | 25.1% | Other | 86 | 22.7% |
| Above 40 | 108 | 28.5% | Income level | | |
| Education level | | | Under 7 million VND | 91 | 24.0% |
| High school | 107 | 28.2% | From 7 - 10 million VND | 88 | 23.2% |
| Bachelor's degree | 173 | 45.6% | From 11 - 15 million VND | 77 | 20.3% |
| Master's degree | 87 | 23.0% | From 15 - 20 million VND | 61 | 16.0% |
| Doctoral degree | 12 | 3.2% | Over 20 million VND | 36 | 9.5% |

Regarding income levels, they are mainly in the middle range. To be more specific, 24.0% earn less than 7 million VND per month, 23.2% earn between 7 and 10 million VND, 20.3% earn between 11 and 15 million VND, 16.0% earn between 15 and 20 million VND, and 9.5% earn more than 20 million VND. It reflects the range of income levels among consumers in the Mekong Delta and is directly relevant to the research.

### 4.2. Measurement validity and reliability

The quality of the measurement scale was considered based on some core indicators, including factor loadings, Cronbach's alpha (CA), composite reliability (CR), average variance extracted (AVE), and variance inflation factors (VIF). According to PLS-SEM guidelines, the measurement metrics are considered acceptable when factor loadings are at least 0.70, CA and CR are above 0.70, AVE is over 0.50, and VIF values are within safe limits to prevent multicollinearity [57].

Table 2. Measurement model evaluation

| Variables/source | Indicators | Factor loading | CA | CR | AVE | VIF |
|---|---|---|---|---|---|---|
| Green packaging (GP) | GP1. I perceive this product's packaging as using environmentally friendly materials. | 0.833 | 0.909 | 0.930 | 0.688 | 2.338 |
| | GP2. I believe that this product's packaging helps reduce environmental waste. | 0.826 | | | | 2.278 |

| Variables/source | Indicators | Factor loading | CA | CR | AVE | VIF |
|---|---|---|---|---|---|---|
| (Amani, 2024; Pan et al., 2021) | GP3. I perceive this product's packaging as suitable for reuse, recycling, or recovery after use. | 0.820 | | | | 2.193 |
| | GP4. I think this product's packaging is designed to minimize environmental impact. | 0.798 | | | | 2.070 |
| | GP5. I perceive this product's packaging as more eco-friendly than conventional packaging. | 0.845 | | | | 2.505 |
| | GP6. The packaging of this product reflects an environmentally responsible packaging approach | 0.853 | | | | 2.548 |
| Green perceived risk (PR) [15], [49] | PR1. I feel uncertain about the environmental performance of products with green packaging | 0.885 | 0.845 | 0.906 | 0.764 | 2.199 |
| | PR2. I worry that products with green packaging may not perform as expected | 0.846 | | | | 1.860 |
| | PR3. I am concerned that the environmental claims on green packaging may be misleading | 0.890 | | | | 2.116 |
| Green perceived quality (PQ) [49] | PQ1. The use of GP reflects a concern for environmental protection | 0.845 | 0.881 | 0.913 | 0.677 | 2.268 |
| | PQ2. Products that use GP are reliable | 0.833 | | | | 2.072 |
| | PQ3. Products that use GP convey an environmentally friendly image | 0.786 | | | | 1.895 |
| | PQ4. Products that use GP contribute to environmental protection | 0.818 | | | | 2.061 |
| | PQ5. Products that use GP are made from safe materials | 0.833 | | | | 2.102 |
| Green perceived value (PV) [13], [14] | PV1. To me, GP meets my expectations regarding environmental protection effectiveness | 0.896 | 0.858 | 0.913 | 0.779 | 2.360 |
| | PV2. I believe that GP is more environmentally friendly than other types of packaging | 0.901 | | | | 2.377 |
| | PV3. I prefer GP because it is environmentally friendly | 0.850 | | | | 1.898 |
| Green satisfaction (GS) [15], [54] | GS1. I am satisfied with choosing brands that use GP because it is environmentally friendly | 0.825 | 0.858 | 0.904 | 0.701 | 1.887 |
| | GS2. Choosing products with GP is a satisfying experience for me | 0.860 | | | | 2.217 |
| | GS3. I am pleased with my decision to choose products that use GP | 0.845 | | | | 2.053 |

| Variables/source | Indicators | Factor loading | CA | CR | AVE | VIF |
|---|---|---|---|---|---|---|
| | GS4. I am satisfied with products that use GP because they demonstrate concern for the environment | 0.818 | | | | 1.844 |
| Green purchase intention (GPI) [14], [15] | GPI1. I am likely to choose products with green packaging when similar products are available | 0.831 | 0.850 | 0.899 | 0.690 | 1.924 |
| | GPI2. I intend to purchase this product in the future due to its environmental friendliness | 0.827 | | | | 1.877 |
| | GPI3. I would consider buying products with GP the next time I shop | 0.817 | | | | 1.850 |
| | GPI4. I intend to purchase products with GP even if the price is higher | 0.848 | | | | 2.028 |
| Green loyalty (GL) [15], [54] | GL1. Brands that use GP would be my first choice over competing brands | 0.862 | 0.888 | 0.921 | 0.745 | 2.552 |
| | GL2. I prefer to buy this product over other alternatives because it uses environmentally friendly packaging | 0.834 | | | | 2.413 |
| | GL3. I rarely consider switching to other products because this product uses environmentally friendly packaging | 0.883 | | | | 2.212 |
| | GL4. I feel committed to brands that consistently use green packaging | 0.872 | | | | 2.241 |

The results in Table 2 show that the indicators meet acceptable thresholds, with factor loadings ranging from 0.786 to 0.901, meaning a strong connection between the observed indicators and their underlying constructs. Specifically, GP ranges from 0.798 to 0.853, PR from 0.846 to 0.890, PQ from 0.786 to 0.845, PV from 0.850 to 0.901, GS from 0.815 to 0.860, GPI from 0.817 to 0.848, and GL from 0.834 to 0.883. Overall, the scales effectively measure the study's constructs in the Mekong Delta context. However, PV4 and PR4 did not meet the necessary criteria and were consequently removed from the model.

All scales achieve strong reliability, with CA ranging from 0.845 to 0.909 and CR from 0.899 to 0.930. GP reports a CA of 0.909 and a CR of 0.930, which explains a strong internal consistency for the green packaging measurements. GL also achieves a CA of 0.888 and a CR of 0.921, which reflects dependent results for green loyalty. The other measurements, including PQ, PR, PV, GS, and GPI, achieve the recommended thresholds. In general, these values are reliable for further structural model analysis. All AVE values of the scales exceed 0.50, ranging from 0.677 to 0.779, meaning adequate convergent validity. Specifically, AVE for GS (0.701), GL (0.745), GPI (0.690), PQ (0.677), and GP (0.688) suggest respondents consistently evaluate the quality and green features of packaging.

The results show VIF values ranging from 1.844 to 2.552, which are lower than the commonly cited warning thresholds. Among these, the highest VIF is 2.552 for GL1, indicating a strong correlation with other GL indicators rather than multicollinearity. This increases the reliability of the model and reduces bias in evaluating GL's moderating effects.

The values in Table 3 show that the estimated model achieved an acceptable overall fit. To be more specific, the SRMR is 0.062, and it is below the 0.08 threshold. This value reflects a low discrepancy between the observed data and the model. The NFI is 0.880, and it is close to 0.90, meaning a good fit even though it does

not meet the more rigorous benchmarks. The d_ULS and d_G values are 1.267 and 0.301, respectively, and both exceed those of the saturated model. It is expected due to the causal constraints of the estimated model. Overall, the model is adequate for interpreting structural relationships.

Table 3. Model fit analysis

| | Saturated model | Estimated model |
|---|---|---|
| SRMR | 0.041 | 0.062 |
| d_ULS | 0.555 | 1.267 |
| d_G | 0.257 | 0.301 |
| Chi-Square | 694.731 | 793.115 |
| NFI | 0.895 | 0.880 |

The results in Table 4 explain discriminant validity among the constructs. All HTMT values are lower than the recommended threshold of 0.85, ranging from 0.244 to 0.637. It means that the measurement scales reflect distinct constructs with minimal overlap. The highest HTMT values are between GP and PV (0.637) and between GS and GPI (0.637), which explains a strong correlation between variables. However, the value still remains within the acceptable limits for the respective constructs. The remaining pairs have low-to-medium values, such as PR with GS (0.575), PR with PQ (0.535), and PR with GP (0.531), which explain the meaningful relationships between perceptual and affective constructs without undermining their measurement separation.

Table 4. Heterotrait-monotrait ratio (HTMT)

| | GP | GPI | GS | PQ | PR | PV |
|---|---|---|---|---|---|---|
| GP | | | | | | |
| GPI | 0.613 | | | | | |
| GS | 0.605 | 0.637 | | | | |
| PQ | 0.244 | 0.388 | 0.513 | | | |
| PR | 0.531 | 0.506 | 0.575 | 0.535 | | |
| PV | 0.637 | 0.550 | 0.526 | 0.319 | 0.276 | |

The Fornell–Larcker results in Table 5 show that the discriminant validity among the constructs is acceptable. Specifically, GP = 0.830 is higher than the greatest correlation of GP with PV (0.565); GPI = 0.831 is higher than the greatest correlation of GPI with GS (0.544); GS = 0.837 is higher than the greatest correlation of GS with GPI (0.544); PQ = 0.823 is higher than the greatest correlation of PQ with GS (0.447); PR = 0.874 is higher than the greatest correlation of PR with GS in absolute value (0.491); PV = 0.882 is higher than the greatest correlation of PV with GP (0.565). This implies that each latent variable measures a separate concept, and the degree of overlap between the constructs is negligible.

Table 5. Fornell-Larcker Criterion

| | GP | GPI | GS | PQ | PR | PV |
|---|---|---|---|---|---|---|
| GP | 0.830 | | | | | |
| GPI | 0.540 | 0.831 | | | | |
| GS | 0.535 | 0.544 | 0.837 | | | |
| PQ | 0.221 | 0.338 | 0.447 | 0.823 | | |
| PR | -0.469 | -0.430 | -0.491 | -0.466 | 0.874 | |
| PV | 0.565 | 0.470 | 0.452 | 0.279 | -0.236 | 0.882 |

Table 6 shows that the model can explain the main outcome variables to a moderate degree. To be more specific, it explains 39.2% of the variation in GPI and 39.4% in GS, which shows a strong predictive power for green

consumption behavior. However, the explanatory power for some mediating variables is limited. For example, PQ only reaches about 4.9%, meaning that there are other factors influencing perceived quality. Conversely, PR and PV have higher explained variation, with R-squared values of 35.8% and 34.4%, respectively. Based on these values, the model can explain factors that affect perceived risk and value. The adjusted R-squared values are similar to the R-squared values across all constructs, confirming the model's stability and showing less impact of the number of predictors included.

Table 6. R square

| | R square | R square adjusted |
|---|---|---|
| GPI | 0.392 | 0.388 |
| GS | 0.394 | 0.390 |
| PQ | 0.049 | 0.047 |
| PR | 0.358 | 0.355 |
| PV | 0.344 | 0.341 |

Table 7 highlights the differences in how variables contribute to the model. The strongest effect is GP → PV ($f^2 = 0.406$), which means that GP has a significant effect on PV. The effects of GP → PR ($f^2 = 0.219$) and PQ → PR ($f^2 = 0.215$) are at a moderate level, explaining that PR is influenced by both GP cues and PQ evaluations. For GPI, the effects range from low to moderate, including GS → GPI ($f^2 = 0.104$), PV → GPI ($f^2 = 0.101$), and PR → GPI ($f^2 = 0.055$), suggesting that GPI is shaped by multiple factors rather than a single dominant predictor. Additionally, PV → GS ($f^2 = 0.152$) and PR → GS ($f^2 = 0.129$) show notable contributions from PV and PR to GS, while GP → PQ ($f^2 = 0.051$) and PQ → PV ($f^2 = 0.038$) demonstrate smaller effect sizes.

Table 7. F square

| | GP | GPI | GS | PQ | PR | PV |
|---|---|---|---|---|---|---|
| GP | | | | 0.051 | 0.219 | 0.406 |
| GPI | | | | | | |
| GS | | 0.104 | | | | |
| PQ | | | 0.055 | | 0.215 | 0.038 |
| PR | | 0.055 | 0.129 | | | |
| PV | | 0.101 | 0.152 | | | |

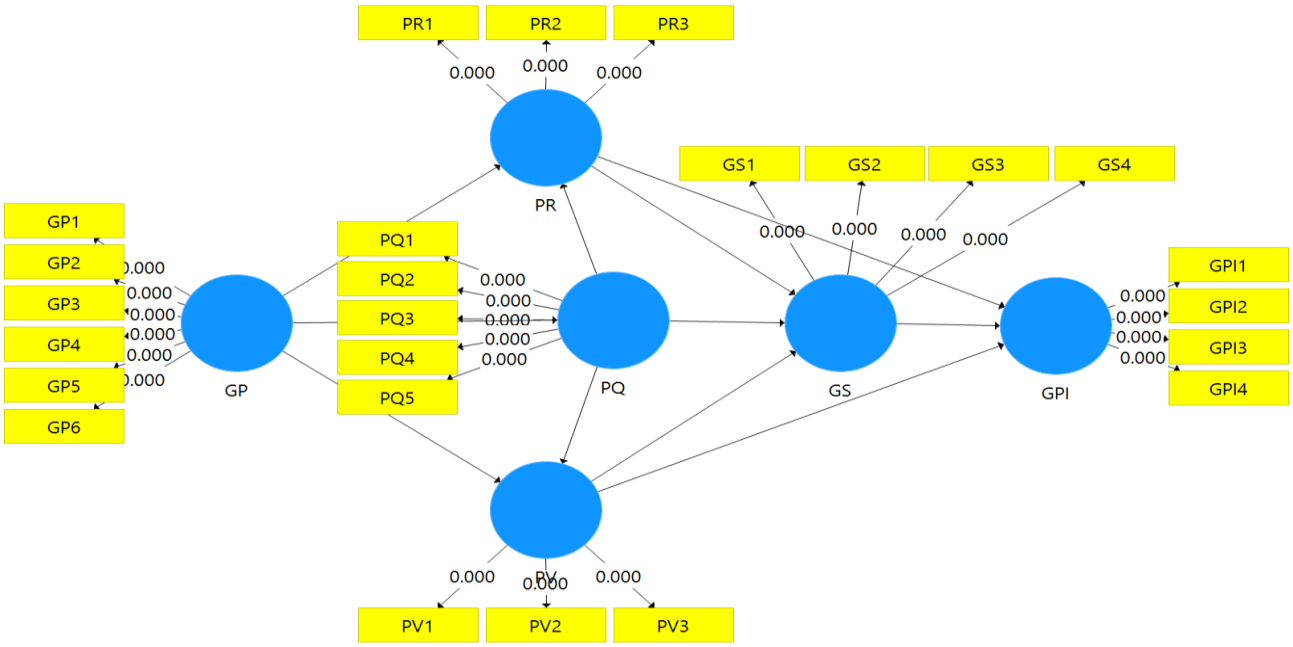


Figure 2. Results of the SEM analysis

Table 8 and Figure 2 confirm that all hypotheses are supported. All path coefficients are statistically significant ($p < 0.05$). To be more specific, GP positively influences PQ (GP → PQ: $\beta = 0.221$; $p = 0.000$) and PV (GP → PV: $\beta = 0.529$; $p = 0.000$), while it negatively impacts PR (GP → PR: $\beta = -0.385$; $p = 0.000$). Additionally, PQ continues to improve GS and PV (PQ → GS: $\beta = 0.210$; $p = 0.000$; PQ → PV: $\beta = 0.162$; $p = 0.000$) and reduce PR (PQ → PR: $\beta = -0.381$; $p = 0.000$). In terms of behavior, both GS and PV promote GPI (GS → GPI: $\beta = 0.315$; PV → GPI: $\beta = 0.278$; $p = 0.000$), whereas PR has a negative influence on purchase intention (PR → GPI: $\beta = -0.210$; $p = 0.000$).

Table 8. Direct relationships between variables in the model

| | Original sample (O) | Sample mean (M) | Standard deviation (STDEV) | T statistics (\|O/STDEV\|) | P values | Hypothesis results |
|---|---|---|---|---|---|---|
| GP -> PQ | 0.221 | 0.221 | 0.046 | 4.756 | 0.000 | Accepted |
| GP -> PR | -0.385 | -0.383 | 0.035 | 11.126 | 0.000 | Accepted |
| GP -> PV | 0.529 | 0.530 | 0.030 | 17.616 | 0.000 | Accepted |
| GS -> GPI | 0.315 | 0.317 | 0.044 | 7.139 | 0.000 | Accepted |
| PQ -> GS | 0.210 | 0.207 | 0.043 | 4.839 | 0.000 | Accepted |
| PQ -> PR | -0.381 | -0.382 | 0.035 | 10.831 | 0.000 | Accepted |
| PQ -> PV | 0.162 | 0.163 | 0.040 | 4.057 | 0.000 | Accepted |
| PR -> GPI | -0.210 | -0.208 | 0.042 | 4.947 | 0.000 | Accepted |
| PR -> GS | -0.319 | -0.319 | 0.044 | 7.239 | 0.000 | Accepted |
| PV -> GPI | 0.278 | 0.278 | 0.039 | 7.181 | 0.000 | Accepted |
| PV -> GS | 0.319 | 0.320 | 0.041 | 7.800 | 0.000 | Accepted |

### 4.3. Moderating effects of GL

The moderation analysis shown in Table 9 and Figures 3, 4, and 5 demonstrates that GL is a significant moderator across all three relationships influencing GPI. Specifically, the interaction effect of GL × PV on GPI is $\beta = 0.287$, $t = 6.690$, $p = 0.000$; GL × GS on GPI is $\beta = 0.304$, $t = 6.885$, $p = 0.000$; and GL × PR on GPI is $\beta = 0.342$, $t = 7.560$, $p = 0.000$. All interaction coefficients are positive. This means that higher levels of GL strengthen the positive effects of PV and GS on GPI. For the PR–GPI relationship, the positive interaction indicates that GL weakens the negative effect of PR on GPI, suggesting that loyal green consumers are less sensitive to perceived risk when forming purchase intentions.

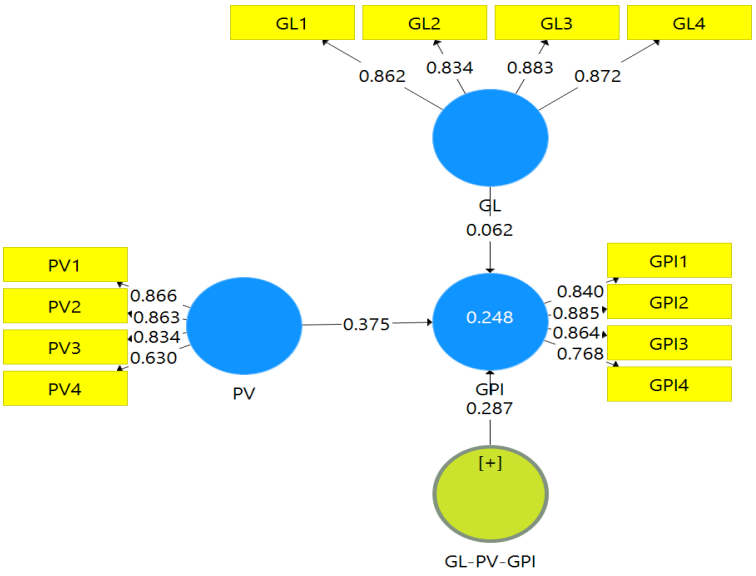


Figure 3. Moderation results of GL on the relationship between PV and GPI

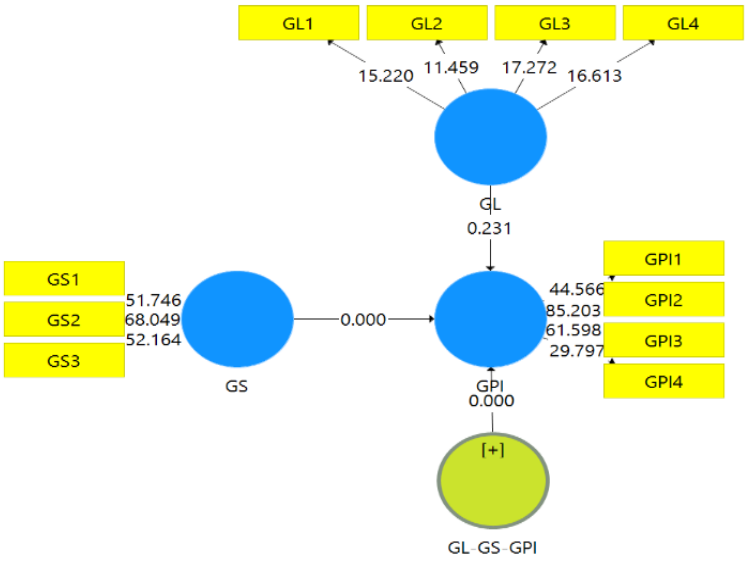


Figure 4. Moderation results of GL on the relationship between GS and GPI

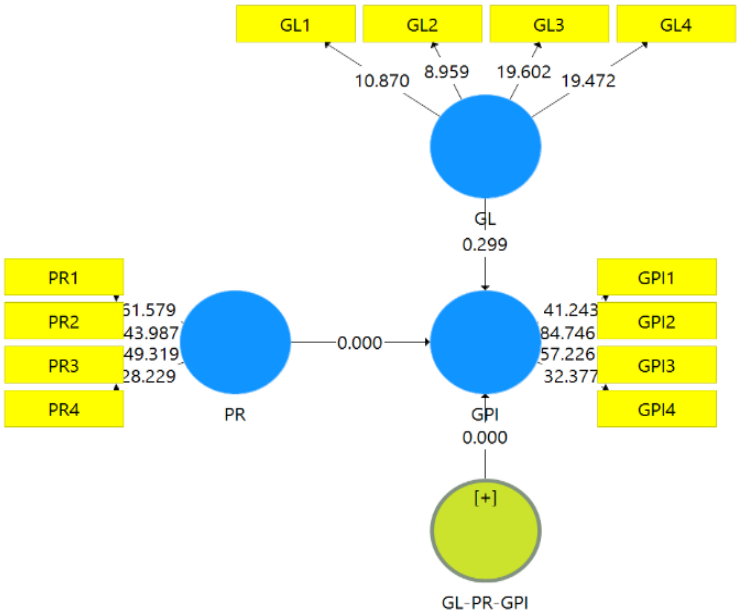


Figure 5. Moderation results of GL on the relationship between PR and GPI

Table 9. The moderating relationships between variables in the model

| | Original sample (O) | Sample mean (M) | Standard deviation (STDEV) | T statistics (\|O/STDEV\|) | P values |
|---|---|---|---|---|---|
| GL-PV-GPI -> GPI | 0.287 | 0.282 | 0.043 | 6.690 | 0.000 |
| GL-GS-GPI -> GPI | 0.304 | 0.299 | 0.044 | 6.885 | 0.000 |
| GL-PR-GPI -> GPI | 0.342 | 0.336 | 0.045 | 7.560 | 0.000 |

## 5. Discussion

By elucidating how green packaging affects green purchase intention through a series of cognitive and affective mechanisms in the Mekong Delta environment, this study directly fills the knowledge gap mentioned in the introduction. Instead of only demonstrating the importance of green packaging, the results clarify how it functions: green packaging mainly increases perceived value, lowers perceived risk, and boosts perceived

quality, all of which lead to satisfaction and purchase intention. This contribution is crucial because previous studies have frequently looked at green consumption using isolated predictors like demographics, general environmental concern, or product-level sustainability cues, while providing less insight into the packaging-specific process that shapes consumer perceptions in an emerging market.

Based on the results, the findings are consistent with the cognition-to-affect-to-behavior model. Among these, GP impacts cognitive evaluations (PQ, PV, PR), then shapes emotional responses (GS), and emotional responses lead to behavior (GPI). At the same time, the results show a strong impact of PV and GS on GPI, which supports the benefit-cost trade-off in green consumption. This result is consistent with the studies of [14], [52], [53]. It can be explained that consumers are willing to choose green products when they perceive benefits, and they will have positive feelings after purchase. The findings also show that GP increases PV and decreases PR, which is consistent with previous research [13], explaining that eco-labels and green information can reduce uncertainty and enhance perceived benefits. A noteworthy difference is that the effect of GS on GPI is slightly stronger than that of PV, implying that in emerging markets, positive experiences and the feeling of making the right decision can be as influential as rational benefit assessments. The poor explanatory power for PQ indicates that variety of signals, including brand reputation, past experiences, pricing cues, and product-related trust, influence perceived quality in addition to packaging. This could also mean that the PQ concept represents a more comprehensive assessment of environmental quality that green packaging cannot adequately explain on its own. Although the interaction term GL × PR is positive, this does not contradict the negative direct effect of PR on GPI. Instead, it indicates that green loyalty buffers the adverse effect of perceived risk on purchase intention. In other words, the negative influence of perceived risk becomes weaker as green loyalty increases.

This study makes a significant contribution by demonstrating that green packaging should be viewed as a mechanism that initiates a wider evaluation chain rather than just as a visual sustainability attribute. Customers in the Mekong Delta react most strongly when green packaging is viewed as offering real, useful benefits rather than just moral symbolism, according to the particularly high role of perceived value. At the same time, the moderating function of green loyalty suggests that green purchasing intention is stabilized across various levels of value, satisfaction, and risk by repeat-buy orientation. Loyalty serves as a boundary condition that influences how cognitive and emotive assessments are translated into behavioral intention, which helps explain why consumers exposed to similar package cues may nevertheless differ in their purchasing behaviors.

GP should be viewed by practitioners as an operational competency instead of just a purely communication tool. Businesses may eliminate overpackaging, increase logistics efficiency, and better match packing choices with sustainability objectives by utilizing AI-enabled demand forecasting, energy management, and supply chain collaboration. While packaging-focused AI applications can improve traceability, recycling, shelf-life prediction, and real-time decision-making, recent green supply chain research demonstrates that AI, big data analytics, and related digital technologies can improve transparency, optimize logistics, and reduce environmental impact. Therefore, rather than being handled as a stand-alone design choice, green packaging strategy should relate to forecasting systems, transportation planning, and warehousing operations.

This study has several limitations that should be acknowledged. First, the research relies on a cross-sectional design and self-reported responses, which can possibly lead to a common method bias and do not allow strong causal inference over time. Second, the quantitative survey used a non-probability convenience sample drawn from consumers in the Mekong Delta; therefore, the findings should be interpreted with caution and cannot be generalized to all Vietnamese consumers or other regional markets. Third, the explanatory power for green perceived quality is very low ($R^2 = 0.049$), indicating that green packaging explains only a small share of consumers' quality judgments. This suggests that important predictors were not included in the current model, particularly brand reputation, consumers' green knowledge, and price perceptions, and possibly prior product experience or trust. Future studies should therefore extend the model by incorporating these omitted determinants, applying broader or probability-based sampling strategies, and using longitudinal or experimental designs to test the robustness of the observed relationships. Additionally, future research could explore potential moderating or mediating effects to better understand the underlying mechanisms of consumer responses to green packaging.

## 6. Conclusion

This study explores how GP influences GPI among consumers in the Mekong Delta through cognitive and emotional variables. The results show that GP plays a crucial role in increasing PQ and PV and contributing to PR. On the other hand, GS and PV have a positive impact on GPI, whereas PR has a negative effect, which means that consumers are affected by uncertainty and the perceived cost of green choices. The model also finds that PQ enhances GS and PV while reducing PR. It emphasizes the importance of perceived quality in improving green consumption. Notably, the study provides evidence of GL's moderating role: GL amplifies the impact of PV and GS on GPI and alters PR's influence on purchase intention. Based on the findings, companies should focus on transparent, verifiable green packaging design and communication to increase PV and GS. At the same time, businesses should reduce perceived risks and develop GL as a strategic tool to encourage sustainable consumption in this context.

## Acknowledgement

The authors gratefully acknowledge the academic mentors and industry specialists whose constructive advice and continued support were instrumental in completing this study. They also extend their appreciation to all stakeholders who provided thoughtful comments and suggestions, which substantially strengthened both the rigor and practical relevance of the research outcomes. We acknowledge that we used ChatGPT (OpenAI) as a supporting tool to enhance the quality of the manuscript, including language checking and editing, refining phrasing during drafting, and assisting with translation. All AI-suggested content was carefully reviewed, cross-checked, verified, and substantially revised by the authors; the authors take full responsibility for the accuracy, integrity, and scholarly viewpoints of the manuscript.

## Declaration of competing interest

The authors confirm that they have no conflicts of interest in relation to this publication.

## Author contribution

The contribution to the paper is as follows: Tran Trung Chuyen, Phan Tran Xuan Trinh: proposing research ideas and model development, determination of research methods, writing and editing the manuscript; Tran Thanh Huy, Nguyen Ngoc Phuong Nhi: collecting and synthesizing data; Nguyen Thi Thu Tam; Nguyen Thanh Van: synthesizing literature and writing the theoretical framework; Le Thi Thanh Thuy, Nguyen Thi My Linh: collected literature, interviewing experts, and writing theoretical framework. All authors approved the final version of the manuscript.

## References

[1] W. Yaoguo, Y. Qiang, I. Ur Rahman, and G. Muhammad Qamri, “The criticality of public concern to corporate sustainability: Unleashing the dual internal and external environmental management pathways influencing corporate green behavior and performance,” *Journal of Environmental Management*, vol. 396, p. 128065, Dec. 2025, https://doi.org/10.1016/j.jenvman.2025.128065

[2] M. A. Schouten et al., “Sustainable food packaging system: Status of regulatory initiatives and issues on plastic use in Tunisia, Kenya, Uganda and Tanzania African countries,” *Trends Food Sci. Technol.*, vol. 163, p. 105143, 2025, https://doi.org/10.1016/j.tifs.2025.105143

[3] M. Dokl et al., “Global projections of plastic use, end-of-life fate and potential changes in consumption, reduction, recycling and replacement with bioplastics to 2050,” *Sustain. Prod. Consum.*, vol. 51, pp. 498–518, 2024, https://doi.org/10.1016/j.spc.2024.09.025

[4] World Bank, "Publication: Vietnam : Plastic Pollution Diagnostics." Accessed: Apr. 09, 2026. [Online]. Available: https://openknowledge.worldbank.org/entities/publication/b3f0fc66-a0f7-56fb-a231-09915a06f8fc

[5] H. T. P. M. Le, P. Van Nguyen, and P. Stokes, "Green influencers and consumers' decoupling behaviors for parasocial relationships and sustainability. A comparative study between Korea and Vietnam," *Journal of Retailing and Consumer Services*, vol. 84, p. 104256, 2025, https://doi.org/10.1016/j.jretconser.2025.104256

[6] V. T. Liem and N. N. Hien, "The impact of managers' attitudes towards environmental management accounting and green competitive advantage in Vietnam manufacturers," *Heliyon*, vol. 10, no. 13, 2024, https://doi.org/10.1016/j.heliyon.2024.e33565

[7] N. D. Linh, "Vietnam works towards sustainable production and consumption," *Nhan Dan Online*. [Online]. Available: https://en.nhandan.vn/vietnam-works-towards-sustainable-production-and-consumption-post140664.html

[8] J. Lee and L. Lee, "The impact of consumer knowledge on socially responsible spending on products from underdeveloped countries," *Journal of Innovation & Knowledge*, vol. 10, no. 4, p. 100725, 2025, https://doi.org/10.1016/j.jik.2025.100725

[9] D. Mudgal, E. Pagone, and K. Salonitis, "Selecting sustainable packaging materials and strategies: A holistic approach considering whole life cycle and customer preferences," *Journal of Cleaner Production*, vol. 481, p. 144133, 2024, https://doi.org/10.1016/j.jclepro.2024.144133

[10] X. Wu, E. Shu, D. Ye, S. Zhou, and H. Sun, "Study on green packaging diffusion in logistics enterprise clusters based on complex network evolutionary game," *Journal of Cleaner Production*, vol. 499, p. 145166, 2025, https://doi.org/10.1016/j.jclepro.2025.145166

[11] S. M. Ghouse, R. Shekhar, M. A. B. Ali Sulaiman, and A. Azam, "Green purchase behaviour of Arab millennials towards eco-friendly products: the moderating role of eco-labelling," *The Bottom Line*, vol. 38, no. 3, pp. 286–308, 2025, https://doi.org/10.1108/BL-08-2023-0246

[12] C. Hou, M. Nomsa, and T. Shi, "Look old, feel green: how retro design of recycled product influences green purchase intention," *Asia Pacific Journal of Marketing and Logistics*, vol. 37, no. 10, pp. 2853–2871, 2025, https://doi.org/10.1108/APJML-08-2024-1110

[13] D. Amani, "Is ethical packaging the right way to go? The impact of green packaging on consumer legitimacy in cosmetics industry," *Cogent Social Sciences*, vol. 10, no. 1, p. 2319375, Dec. 2024, https://doi.org/10.1080/23311886.2024.2319375

[14] P. Duarte, S. C. Silva, A. S. Roza, and J. C. Dias, "Enhancing consumer purchase intentions for sustainable packaging products: An in-depth analysis of key determinants and strategic insights," *Sustainable Futures*, vol. 7, p. 100193, 2024, https://doi.org/10.1016/j.sftr.2024.100193

[15] C. Pan, Y. Lei, J. Wu, and Y. Wang, "The influence of green packaging on consumers' green purchase intention in the context of online-to-offline commerce," *Journal of Systems and Information Technology*, vol. 23, no. 2, pp. 133–153, 2021, https://doi.org/10.1108/JSIT-11-2019-0242

[16] H. Li and B. Wang, "Green packaging materials design and efficient packaging with Internet of Things," *Sustainable Energy Technologies and Assessments*, vol. 58, p. 103186, 2023, https://doi.org/10.1016/j.seta.2023.103186

[17] C. C. I. Lau and C. W. Y. Wong, "Achieving sustainable development with sustainable packaging: A natural-resource-based view perspective," *Bus. Strategy Environ.*, vol. 33, no. 5, pp. 4766–4787, Jul. 2024, https://doi.org/10.1002/bse.3720

[18] C. Vogiantzi and K. Tserpes, "On the Definition, Assessment, and Enhancement of Circular Economy across Various Industrial Sectors: A Literature Review and Recent Findings," *Sustainability*, vol. 15, no. 23, p. 16532, Jan. 2023, https://doi.org/10.3390/su152316532.

[19] Z. Zhu, W. Liu, S. Ye, and L. Batista, "Packaging design for the circular economy: A systematic review," *Sustain. Prod. Consum.*, vol. 32, pp. 817–832, 2022, https://doi.org/10.1016/j.spc.2022.06.005

[20] A. Cozzolino and P. De Giovanni, "Portfolios of sustainable practices for packaging in the circular economy: an analysis of Italian firms," *The International Journal of Logistics Management*, vol. 34, no. 7, pp. 24–49, Jan. 2023, https://doi.org/10.1108/IJLM-03-2022-0132

[21] T. Calzolari, M. Bimpizas-Pinis, A. Genovese, and A. Brint, "Understanding the relationship between institutional pressures, supply chain integration and the adoption of circular economy practices," *Journal of Cleaner Production*, vol. 432, p. 139686, Dec. 2023, https://doi.org/10.1016/j.jclepro.2023.139686.

[22] R. Greenwood, R. E. Meyer, T. B. Lawrence, and C. Oliver, *The SAGE Handbook of Organizational Institutionalism*. London, U.K.: SAGE, 2017. https://doi.org/10.4135/9781526415066

[23] C.-S. Yang, "An analysis of institutional pressures, green supply chain management, and green performance in the container shipping context," *Transportation Research Part D: Transport and Environment*, vol. 61, pp. 246–260, Jun. 2018, https://doi.org/10.1016/j.trd.2017.07.005

[24] J. Barney, "Firm Resources and Sustained Competitive Advantage," *Journal of Management*, vol. 17, no. 1, pp. 99–120, Mar. 1991, https://doi.org/10.1177/014920639101700108

[25] S. L. Hart, "A Natural-Resource-Based View of the Firm," *The Academy of Management Review*, vol. 20, no. 4, pp. 986–1014, 1995, https://doi.org/10.2307/258963

[26] B. Lu, L. Yan, and Z. Chen, "Perceived values, platform attachment and repurchase intention in on-demand service platforms: a cognition-affection-conation perspective," *Journal of Retailing and Consumer Services*, vol. 67, p. 103024, 2022, https://doi.org/10.1016/j.jretconser.2022.103024

[27] V. Gautam and S. Bhalla, "Understanding residents' environmental responsible behaviour: a cognition – affection – attitude – behaviour model perspective," *Current Issues in Tourism*, vol. 27, no. 23, pp. 4013–4032, Dec. 2024, https://doi.org/10.1080/13683500.2023.2273909

[28] L. Chen, Q. Zhou, M. Wu, K. F. Yuen, R. Huang, and R. Su, "Investigating the determinants of Singaporean citizens' attitudes toward marine litter pollution control: A policy acceptance model," *Science of the Total Environment*, vol. 957, p. 177566, 2024, https://doi.org/10.1016/j.scitotenv.2024.177566

[29] L. Wang and H. Chen, "Why does leadership non-contingent punishment lead to bystander workplace deviance behavior?–Dual path perspective of cognition and affection," *Journal of Organizational Change Management*, vol. 37, no. 5, pp. 926–944, 2024, https://doi.org/10.1108/JOCM-04-2023-0145

[30] C. G. L. Corrêa, "The relation between affection and cognition: theoretical perspectives," *Psicologia Escolar e Educacional*, vol. 28, p. e257346, 2024, https://doi.org/10.1590/2175-35392024-257346-t

[31] X. Fu, "A novel perspective to enhance the role of TPB in predicting green travel: the moderation of affective-cognitive congruence of attitudes," *Transportation*, vol. 48, no. 6, pp. 3013–3035, Dec. 2021, https://doi.org/10.1007/s11116-020-10153-5

[32] R. S. da Silva, G. Q. Souki, A. S. de Oliveira, L. S. G. Vieira, and M. Serra, "Cognitive, affective and behavioural repercussions of perceived quality in tourism vocational education: insights from self-determination theory," *International Journal of Educational Management*, vol. 38, no. 6, pp. 1710–1734, 2024, https://doi.org/10.1108/IJEM-11-2023-0544

[33] A. Al Mamun, Y. Ma, M. N. H. Reza, J. Ahmad, H. W. M. H. Wan, and Z. Lili, "Predicting attitude and intention to reduce food waste using the environmental values-beliefs-norms model and the theory of planned behavior," *Food Quality and Preference*, vol. 120, p. 105247, 2024, https://doi.org/10.1016/j.foodqual.2024.105247

[34] S. Majeed, W. G. Kim, and T. Kim, "Perceived green psychological benefits and customer pro-environment behavior in the value-belief-norm theory: The moderating role of perceived green CSR," *International Journal of Hospitality Management*, vol. 113, p. 103502, 2023, https://doi.org/10.1016/j.ijhm.2023.103502

[35] L. Xu, X. Qian, and M. Ling, "Moderating the influence of social norms on climate change mitigation behavior: The roles of environmental beliefs, government quality, and policy incentives," *Environmental Impact Assessment Review*, vol. 114, p. 107901, 2025, https://doi.org/10.1016/j.eiar.2025.107901

[36] Y. He, Y. Sun, Z. Zhao, M. Chen, E. O. D. Waygood, and Y. Shu, "Impact of social-psychological factors on low-carbon travel intention: Merging theory of planned behavior and value-belief-norm theory," *Heliyon*, vol. 10, no. 6, 2024, https://doi.org/10.1016/j.heliyon.2024.e28161

[37] J. Kang, S. Tolppanen, H. Kim, and M. Ha, "Exploring the role of biospheric/egoistic values, scientific engagement, and cross-cultural effects in high school students' willingness to take climate action," *Environmental Education Research*, vol. 31, no. 12, pp. 2489–2506, Dec. 2025, https://doi.org/10.1080/13504622.2024.2437125

[38] P. Roslin, B. Godwin J. Davidson, J. P. George, and P. V. Muttungal, "Role of Egoistic and Altruistic Values on Green Real Estate Purchase Intention Among Young Consumers: A Pro-Environmental, Self-Identity-Mediated Model," *Real Estate*, vol. 2, no. 3, p. 13, 2025, https://doi.org/10.3390/realestate2030013

[39] X. Zhang, K. Chen, and S. Li, "The effects of green advertising appeal and message type on purchase intention," *Journal of Retailing and Consumer Services*, vol. 81, p. 104007, Nov. 2024, https://doi.org/10.1016/j.jretconser.2024.104007

[40] Y. Ma and H. Wang, "The interaction effect of green advertising appeal and monetary resource perception on consumers' green purchase intention," *Journal of Behavioral and Experimental Economics*, p. 102436, 2025, https://doi.org/10.1016/j.socec.2025.102436

[41] J. Han, G. Prabhakar, X. Luo, and H.-T. Tseng, "Exploring generation Z consumers' purchase intention towards green products during the COVID-19 pandemic in China," *e-Prime*, vol. 8, p. 100552, Jun. 2024, https://doi.org/10.1016/j.prime.2024.100552

[42] X. Zhuang et al., "On the factors influencing green purchase intention: A meta-analysis approach," *Front. Psychol.*, vol. 12, 2021, https://doi.org/10.3389/fpsyg.2021.644020

[43] R. Long, X. Yuan, and M. Wu, "Consumers' green product purchase intention considering para-social interaction: An experimental study based on live-streaming e-commerce," *Journal of Cleaner Production*, vol. 481, p. 144169, 2024, https://doi.org/10.1016/j.jclepro.2024.144169

[44] Y. M. Shehawy and S. M. F. A. Khan, "Consumer readiness for green consumption: The role of green awareness as a moderator of the relationship between green attitudes and purchase intentions," *Journal of Retailing and Consumer Services*, vol. 78, p. 103739, 2024, https://doi.org/10.1016/j.jretconser.2024.103739

[45] M. Kolacz and G. Bhaduri, "Pack it up: impact of message frames, perceived benefits and green consumer values for apparel product packaging on brand attitude," *Research Journal of Textile and Apparel*, vol. 29, no. 4, pp. 860–875, 2025, https://doi.org/10.1108/rjta-02-2024-0027

[46] Y. Huh, Y. Xu, and E. Jeong, "Co-branding for sustainability: how consumer perceived benefits, risks, and quality assurance shape upcycled food acceptance," *British Food Journal*, vol. 128, no. 1, pp. 386–406, 2025, https://doi.org/10.1108/bfj-04-2025-0446

[47] W. Fadhila and K. C. P. Putra, "Experience Quality's Impact on Green Customer Satisfaction Mediated by Green Perceived Value in the Malang Ecotourism Landscape," *International Journal of Green Tourism Research and Applications*, vol. 6, no. 1, pp. 8–20, 2024, https://doi.org/10.31940/ijogtra.v6i1.8-20

[48] A. Al Hasanah, E. Yulianto, and A. Kusumawati, "Understanding the Impact of Green Perceived Value on Purchase Intentions Through Green Satisfaction: Literature Review," *KnE Social Sciences*, vol. 10, no. 13, pp. 134–146, 2025, https://doi.org/10.18502/kss.v10i13.18947

[49] D. Suhartanto, A. Kartikasari, R. Hapsari, B. S. Budianto, M. Najib, and Y. Astor, "Predicting young customers' intention to repurchase green plastic products: incorporating trust model into purchase intention model," *Journal of Asia Business Studies*, vol. 15, no. 3, pp. 441–456, 2021, https://doi.org/10.1108/jabs-04-2020-0150

[50] A. Finet, K. Kristoforidis, and J. Laznicka, "Negative Emotions and Decision-Making Paralysis Among Individual Investors: A Qualitative Approach," *Risks*, vol. 13, no. 11, p. 209, 2025, https://doi.org/10.3390/risks13110209

[51] A. Sanyal and S. Sur, "A bibliometric analysis of perceived risks: A closer look at green marketing and green purchase intention," *Int. J. Product. Qual. Manag.*, vol. 43, no. 1, pp. 74–103, 2024, https://doi.org/10.1504/IJPQM.2024.141499

[52] D. Yan, C. Wang, T. Sun, and D. Wen, "The impact of service experience on sustainable customer engagement: The mediation of green perceived value and customer satisfaction," *Corp. Soc. Responsib. Environ. Manag.*, vol. 31, no. 3, pp. 2175–2194, May 2024, https://doi.org/10.1002/csr.2685

[53] N. Zhang, R. Liu, X.-Y. Zhang, and Z.-L. Pang, "The impact of consumer perceived value on repeat purchase intention based on online reviews: by the method of text mining," *Data Science and Management*, vol. 3, pp. 22–32, Sep. 2021, https://doi.org/10.1016/j.dsm.2021.09.001

[54] C. B. Wong, M. Law, and W. C. B. Wu, "Determinants of customer loyalty: A green marketing perspective," in *Proc. 10th Int. Conf. Business, Accounting, Finance and Economics (BAFE)*, 2023, pp. 447–462, https://doi.org/10.2991/978-2-494069-99-2_33

[55] A. B. Duche-Pérez *et al.*, "Predictors of purchase intention mediated by customer satisfaction," *Edelweiss Applied Science and Technology*, vol. 9, no. 3, pp. 1189–1201, 2025, https://doi.org/10.55214/25768484.v9i3.5446

[56] C.-S. Shyu, C.-C. Yen, and C.-S. Lin, “The impact of consumer loyalty and customer satisfaction in the new agricultural value chain,” *Agriculture*, vol. 13, no. 9, p. 1803, 2023, https://doi.org/10.3390/agriculture13091803

[57] J. F. Hair, G. T. M. Hult, C. M. Ringle, M. Sarstedt, N. P. Danks, and S. Ray, *Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R: A Workbook*. in Classroom Companion: Business. Cham: Springer International Publishing, 2021. https://doi.org/10.1007/978-3-030-80519-7