Journal of Sustainable Development of Energy, Water and Environment Systems

http://www.sdewes.org/jsdewes

Year 2026, Volume 14, Issue 1, 1130651

Original Research Article

Plastic Waste to Green Economy through Green Products and Green Packaging on Consumer Purchase Decisions of Micro Small Medium Enterprises in East Java Tourism

***Sumarmi Sumarmi* [1], Yosini Deliana[2], Andi Dirpan[3], Eli Hendrik Sanjaya[4], Umar Haiyat Abdul Kohar[5]**

[1]Geography Department, Faculty of Social Science, Universitas Negeri Malang, Malang 65145, Indonesia
e-mail: sumarmi.fis@um.ac.id

[2]Agricultural Economics, Faculty of Agriculture, Padjajaran University, Bandung 45363, Indonesia
e-mail: y.deliana@unpad.ac.id

[3]Food Science and Technology, Faculty of Agriculture, Hasanuddin University, Makasar 90245, Indonesia
e-mail: dirpan@unhas.ac.id

[4]Department of Chemistry, Faculty of Mathematics and Natural Sciences, Universitas Negeri Malang, Malang 65145, Indonesia
e-mail: eli.hendrik.fmipa@um.ac.id

[5]Faculty of Management, University of Technology Malaysia (UTM), Johor Bahru 81310, Malaysia
e-mail: umarhaiyat@utm.my

Cite as: Sumarmi, S., Deliana, Y., Dirpan, A., Sanjaya, E. H., Kohar, U. H. A., Plastic Waste to Green Economy through Green Products and Green Packaging on Consumer Purchase Decisions of Micro Small Medium Enterprises in East Java Tourism, J.sustain. dev. energy water environ. syst., 14(1), 1130651, 2026, DOI: https://doi.org/10.13044/j.sdewes.d13.0651

ABSTRACT

Green packaging has emerged as a viable strategy to promote environmental responsibility and improve quality of life. This study investigates the effects of Green Products and Green Packaging on purchase decisions and their direct and mediated impacts on the Green Economy. Data were collected through questionnaires, observations, and interviews involving micro small medium enterprises in East Java's tourism sector and local consumers. Structural Equation Modeling was employed for analysis. Results show that green products ($\beta = 0.380$, $p < 0.001$) and green packaging ($\beta = 0.399$, $p < 0.001$) significantly influence purchase decisions ($R^2 = 0.382$). Both variables also directly affect the green economy ($\beta = 0.231$; $\beta = 0.234$), with purchase decisions acting as a partial mediator ($\beta = 0.133$; $\beta = 0.139$). The model demonstrates substantial explanatory power ($R^2 = 0.417$; GoF = 0.492). These findings highlight the importance of sustainable consumer behavior and offer strategic insights for micro small medium enterprises to strengthen eco-branding and accelerate green economic transitions.

KEYWORDS

Green Products; Green Packaging; Purchase Decision; Green Economy; Sustainable Consumption; Micro Small Medium Enterprises

INTRODUCTION

The rapid economic development, supported by technological advances, has led to unsustainable production and consumption patterns that negatively impact the environment. Common environmental issues include climate change, water pollution, and air pollution, which have garnered significant attention worldwide [1]. The production and sale of green

* Corresponding author

products have become a primary focus for companies [2]. Previous research has also found that green products are increasingly recognized by society and consumers because they are often associated with the solution to environmental degradation caused by the industry [3].

Despite growing global awareness of the importance of environmental conservation, Indonesia remains the second largest waste producer after China [4]. This proves that more than 17,000 tons of waste are produced annually and only 66.12% of it is managed properly [5]. Awareness of environmental conservation is driven by concerns about the potential for environmental disasters [6]. When environmental disasters occur, they threaten human survival [7]. Furthermore, environmental disasters also impact the lives of future generations [8]. There is evidence in previous studies that waste originates from households, SMEs, industries, and hospitals [9]. Furthermore, while SMEs in Indonesia are able to adapt to technological and market changes, the implementation of environmentally responsible practices, particularly in packaging, remains inconsistent [9]. This gap highlights the urgent need to understand how environmentally friendly practices in SMEs can influence consumer behavior and accelerate the transition to a green economy.

Green packaging practices used by SMEs, such as green products and green packaging, not only influence consumer behavior but also contribute to reducing carbon emissions. Green products and green packaging are made from renewable energy sources like bamboo, wood, and bioplastics. Carbon emissions have been shown to decrease due to eco-friendly practices using energy efficient methods. Furthermore, eco-friendly practices such as green products and green packaging in SMEs are supported by advanced, energy efficient technology and designed to prevent environmental pollution.

The development of SMEs is evident in their packaging and marketing strategies. SMEs currently have traditional to modern marketing strategies, and consider environmentally friendly marketing [10]. Previous research has identified that traditional marketing and sales strategies can impact the environment, while current business practices increasingly acknowledge environmental concerns [11]. Increased awareness of environmental issues in business practices is reflected in the application of the green economy concept [12]. There is evidence in previous research that green economy strategies in marketing and sales improve social welfare [13]. Furthermore, the green economy also significantly impacts environmental risk reduction [14]. Green economic model focuses on sustainable resource utilization and management [15]. The green economy refers to the integration of social factors, such as human behavior, and environmental considerations within economic processes to achieve sustainable development [16]. The green economy contributes to the responsible use of natural capital through pollution prevention and reduction measures, creating opportunities for social well-being, and promoting sustainable development through consumer purchasing decisions [12].

According to the Theory of Planned Behavior (TPB), consumer purchase decisions are influenced by behavioral beliefs (perceptions of environmental benefits) and normative beliefs (social expectations), which together shape attitudes, subjective norms, and intentions leading to actual behavior [17]. Green products and green packaging serve as stimuli that influence these beliefs, making them critical drivers of environmentally conscious purchasing. Simultaneously, the green economy framework emphasizes sustainable resource use, pollution prevention, and the creation of social welfare through eco-innovation [14]. In this conceptual integration, purchase decisions act as a mediating mechanism, linking environmentally friendly practices to broader economic and sustainability outcomes [17]. Thus, when consumers choose green products packaged sustainably, they not only express individual preferences but also contribute to systemic transitions toward green economic growth [18]. However, many of these investigations are limited to intention rather than actual purchase decisions and rarely connect consumer behavior with broader economic outcomes [19]. Research that simultaneously considers the impact of green products and green packaging on consumer purchase decisions,

and how these decisions contribute to strengthening the green economy, remains underexplored. This gap provides the starting point for the present study.

Therefore, this research specifically investigates the impact of green products and green packaging on consumer purchase decisions and their subsequent influence on the green economy. Using a mixed method approach involving surveys, interviews, and observations with SMEs and consumers in East Java's tourism sector, the study employs Structural Equation Modeling (SEM) to capture both direct and indirect effects. This methodological design allows for a robust analysis that integrates behavioral, economic, and sustainability dimensions.

The value of this manuscript lies in its theoretical contribution to bridging consumer behavior theories with green economy frameworks, and its practical contribution in offering strategic insights for SMEs and policymakers. By clarifying the mediating role of consumer purchase decisions, the study advances knowledge on how sustainable business practices can reduce plastic waste, strengthen eco-friendly branding, and accelerate the transition to a green economy in emerging markets.

LITERATURE REVIEW

Packaging is an important component of product design and functions as a marketing tool [20]. In addition, packaging can also shape consumer perceptions of environmental responsibility. The food industry is one of the largest contributors to environmental pollution due to the intensive use of plastic packaging [21]. Findings from previous studies indicate that packaging waste contributes a significant portion of the non-biodegradable waste stream, exacerbating global ecological concerns [22]. Addressing this issue requires regulatory intervention and business driven innovation to reduce waste and encourage circular economy practices [23]. In this context, the transition to green packaging and green product design is essential to promote sustainable development.

Green products are designed to minimize environmental impact by using environmentally friendly and recyclable materials. Furthermore, green products play a positive role in encouraging environmentally friendly consumption. Previous findings suggest that limited environmental awareness and high prices are barriers to green product adoption. Furthermore, consumer knowledge and environmental attitudes directly shape purchasing behavior for environmentally friendly products, but the transformation from positive attitudes to actual behavior is inconsistent. This suggests that while environmentally friendly product attributes can increase purchase intentions, they do not guarantee actual purchase decisions.

Green packaging has become a key focus in influencing consumer perceptions of product sustainability. Green packaging positively influences purchase intentions, especially in online to offline commerce. Furthermore, previous findings suggest that consumers consider aesthetic and functional aspects before making purchasing decisions. Furthermore, green packaging is often perceived as less attractive, less durable, or more expensive than conventional packaging. This aligns with previous research that recent advances in material innovation, such as bamboo fiber, bioplastics, and smart biodegradable composites, offer solutions but also highlight the cost and scalability issues faced by MSMEs. Therefore, further critical evaluation of how green packaging can address these limitations while maintaining consumer appeal is warranted.

From a theoretical perspective, the Theory of Planned Behavior (TPB) provides a robust framework for understanding how consumer behavioral beliefs (e.g., perceived environmental benefits), normative beliefs (e.g., social pressure to act sustainably), and perceived behavioral control (e.g., affordability and availability of environmentally friendly products) influence purchasing decisions [17]. Within this framework, environmentally friendly products and environmentally friendly packaging serve as key stimuli that shape consumer attitudes and norms, thereby driving actual purchasing behavior. Complementing the TPB, the Theory of Green Consumerism emphasizes the ethical and values dimensions of consumption, suggesting that environmentally conscious consumers integrate personal values with product choices to

achieve ecological and social well-being [24]. Together, these frameworks provide a conceptual basis for linking product attributes to broader economic and environmental outcomes.

Purchasing decisions play a role in linking green products and green packaging to the sustainable economic transition. While previous research often focuses on purchase intentions, few studies have explored actual purchasing decisions as predictors of systemic change. Previous findings suggest a gap between intentions and behavior, posing challenges to green products and green packaging.

In this context, decision making is crucial for mediating the relationship between consumer attitudes and behaviors [25]. Research has shown that purchase decisions are a practical predictor of actual behavior, often more so than attitudes alone [26]. Specifically, the decision to purchase environmentally friendly products has been identified as a significant predictor of sustainable purchasing behaviors [27]. Thus, understanding how consumer decisions are influenced by green products and green packaging is vital for producers [28].

Green products, which have a positive impact on the environment, are increasingly promoted through green marketing strategies. These strategies include offering a variety of organic products to consumers. Green products are characterized by three key indicators: (1) product perception, which is essential for shaping consumer views and encouraging purchases of green products; (2) packaging, which must be recyclable and non-damaging to the environment; and (3) composition, where materials used should be resource efficient, non-harmful to health or the environment, and environmentally friendly [29]. This study examines variables of Green Product (GP), Green Packaging (PC), Purchase Decision (PD), and Green Economy (GE). Table 1 presents the development of research variable indicators for Green Product (GP), which collectively capture the multidimensional aspects of sustainable production, market positioning, and consumer accessibility.

Table 1. Development of Research Variable Indicators of Green Product

No	Code	Green Product (GP)	Source
1	GP 1	Producing goods in environmentally friendly packaging (green packaging)	[30]
2	GP 2	Producing goods with reusable packaging	[31]
3	GP 3	Selling products with green packaging at a higher price	[32]
4	GP 4	Creating products with green packaging results in more efficient costs and lower production expenses.	[33]
5	GP 5	Using green packaging speeds up production time.	[34]
6	GP 6	Products with green packaging significantly help reduce negative impacts on the environment and human health.	[28]
7	GP 7	Products with green packaging are reasonably priced for consumers.	[35]
8	GP 8	Products with green packaging tend to have a shorter lifespan.	[36]
9	GP 9	There are limited product choices available with green packaging.	[37]
10	GP 10	It is crucial to educate other SMEs to produce products with green packaging to avoid plastic waste.	[38]

Table 2 outlines the development of research variable indicators related to Green Packaging (PC), consisting of twelve measurable items

Table 2. Development of Research Variable Indicators of Green Packaging

No	Code	Green Packaging (PC)	Source

1	PC 1	Using green packaging is highly beneficial for significantly reducing plastic waste.	[39]
2	PC 2	Products with locally sourced green packaging materials have high quality.	[40]
3	PC 3	Using recycled materials for green packaging is very attractive.	[41]
4	PC 4	Educating others to produce items that serve as green packaging is very important.	[42]
5	PC 5	Repurposing used items to create crafts for green packaging is very appealing.	[43]
6	PC 6	There is support from leading environmental organizations for products with green packaging.	[44]
7	PC 7	The design of green packaging tends to be less attractive.	[43]
8	PC 8	Raw materials for producing green packaging are cheaper.	[45]
9	PC 9	Raw materials for producing green packaging are difficult to obtain.	[45]
10	PC 10	Many people are indifferent to creating products with easily recyclable packaging.	[46]
11	PC 11	New competitors innovating in green packaging products start to emerge.	[47]
12	PC 12	Many competitors offer more innovative green packaging products.	[48]

Table 3 presents the development of research variable indicators for Purchase Decision (PD), which consists of ten key items capturing consumer behavior in relation to green packaging.

Table 3. Development of Research Variable Indicators of Purchase Decision

No	Code	Purchase Decision (PD)	Source
1	KM 1	Increasing environmental awareness makes green packaging an attractive choice.	[49]
2	KM 2	Products with green packaging tend to sell less.	[50]
3	KM 3	Products with green packaging are often less visually appealing to buyers.	[51]
4	KM 4	Products with green packaging are not well known in the market, leading to lower sales.	[52]
5	KM 5	Consumers do not yet trust the quality of green packaging.	[53]
6	KM 6	Products with green packaging are generally more expensive due to costly packaging materials.	[54]
7	KM 7	Environmentally friendly packaging does not stack well, complicating storage.	[55]
8	KM 8	Consumers prefer products with recycled cardboard green packaging due to its environmental benefits.	[56]
9	KM 9	Many people lack high knowledge and awareness about environmental conservation.	[57]
10	KM 10	Consumer attitudes towards green packaging products are inconsistent.	[53]

Table 4 summarizes the development of research variable indicators for the Green Economy (GE), presenting ten indicators that demonstrate how green packaging contributes to economic transformation and sustainability outcomes.

Table 4. Development of Research Variable Indicators of Green Economy

No	Kode	Green Economy (GE)	Source
1	GE 1	Green packaging can enhance the branding/image of an industry.	[58]
2	GE 2	Businesses using green packaging can attract international market attention with innovative products.	[52]
3	GE 3	There is increasing support for products with green packaging.	[49]
4	GE 4	Many new developments support more efficient green packaging production.	[59]
5	GE 5	Products using green packaging have many opportunities for grants and assistance from government and non-governmental organizations.	[33]
6	GE 6	Green packaging serves as attractive branding, making products easier to sell to domestic and foreign tourists.	[60]
7	GE 7	Products with green packaging have significant potential for export at higher value.	[61]
8	GE 8	Opens many collaborations with other SMEs that also produce green packaging to further enhance branding	[62]
9	GE 9	Products with green packaging are highly profitable due to limited competition.	[49]
10	GE 10	Products with green packaging still have high export potential due to limited production.	[63]

METHOD

This section shows the research methodology consisting of research design; population and sample; statistical analysis.

Research Design

This study employs a mixed methods approach, incorporating both quantitative and qualitative research methods. It is supported by primary data collected through the distribution of questionnaires to consumers and SMEs (Small and Medium Enterprises), supplemented by observations and interviews [64]. A questionnaire instrument was used to obtain data related to the impact of green products and green packaging on consumer decisions in the context of a green economy. In addition, observations are used to record research findings which are then compiled into a basis or research topic. Furthermore, interviews were conducted to determine the impact of green products and green packaging. A non-probability sampling technique was used as the sampling method [65]. This non-probability sampling technique is suitable for implementation because sampling where members of the population do not have an equal chance of being selected as a sample, sample selection is based on specific characteristics as MSMEs Green products and Green Packaging. This methodology aims to ensure that the findings are of higher quality, complete, and comprehensive.

Population and Sample

The population refers to a general area consisting of objects or subjects with specific qualities and characteristics. The population for this research comprises SMEs in the tourism sector in East Java. East Java has the largest number of SMEs in Indonesia. As of 2022, there were 9,782,262 active SMEs in East Java Timur [66]. However, this study focuses specifically on SMEs within the tourism sector. This sector includes various types of businesses such as culinary services (food and beverages), tourist attractions, souvenir shops, handicrafts, and others.

The study sample consists of 200 respondents, with 50 respondents each from Malang City, Batu City, Pamekasan City, and Banyuwangi. Consumers and SMEs were analyzed simultaneously using Structural Equation Modeling (SEM), a popular statistical analysis tool that has advantages. SEM combines factor analysis with regression analysis to examine the relationships among variables within a model, including between indicators and constructs or among constructs. SEM allows researchers to address regression or dimensional research questions and facilitates the measurement of concepts [67]. The relationships among variables are illustrated in Figure 1.

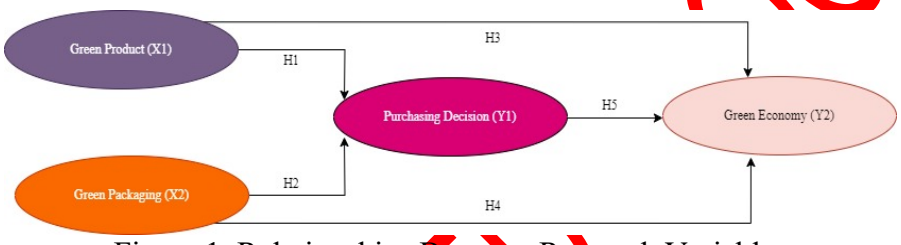

Figure 1. Relationships Between Research Variables

Figure 1 illustrates the conceptual framework tested in this study. The framework is grounded in sustainability and consumer behavior theories, highlighting both direct and indirect relationships among constructs. Green Product (X1) and Green Packaging (X2) are proposed as exogenous variables influencing both Purchase Decision (Y1) and Green Economy (Y2). Purchase Decision (Y1) functions as a mediating variable, transmitting the effect of green product and green packaging toward the green economy.

The model specifies seven hypotheses (H1–H7):

H1. Green Products have a positive effect on Purchase Decisions.
H2. Green Packaging has a positive effect on Purchase Decisions.
H3. Green Products have a positive effect on the Green Economy.
H4. Green Packaging has a positive effect on the Green Economy.
H5. Purchase Decisions have a positive effect on the Green Economy.
H6. Green Products have an indirect effect on the Green Economy through Purchase Decisions.
H7. Green Packaging has an indirect effect on the Green Economy through Purchase Decisions.

Statistical Analysis

Smart PLS is employed to analyze the conceptual framework. Structural Equation Modeling (SEM) is used for multivariate data analysis to evaluate the proposed framework [68]. The analysis proceeds in two main stages.

(a) Measurement model assessment: The validity and reliability of the measurement model are evaluated. This includes assessing Convergent Validity, Discriminant Validity, and construct reliability using coefficients such as the standard regression coefficient (β) and p-values. The OUTER MODEL of Structural Equation Modeling (SEM) is examined through indicators reflecting Convergent Validity and Discriminant Validity, as well as reliability using Cronbach's Alpha and Composite Reliability. An assessment is considered valid if the external

factor load is greater than 0.7. Furthermore, the value is considered reliable if the threshold value is 0.7.

(b) Structural Model Assessment: The structural model is evaluated to test the hypothesized relationships and the overall model fit.

RESULT

This section illustrates the research results consisting of reliability and validity assessment; reliability; structural model (inner model); model evaluation.

Reliability and Validity Assessment

Convergent Validity. Each item in the variables must exhibit convergent validity with an outer loading value greater than 0.7. For the Green Product variable (X1), 10 items were valid with factor loadings ranging from 0.728 to 0.857, with the highest loading on item GP9 (There are limited product choices available with green packaging). For the Green Packaging variable (X2), 12 items were valid with factor loadings ranging from 0.739 to 0.854, with the highest loading on item PC7 (The design of green packaging tends to be less attractive). The Purchase Decision variable (Y1) includes 10 valid items with loadings between 0.728 and 0.846, with the highest loading on item KM2 (Products with green packaging tend to sell less). The Green Economy variable (Y2) has 10 valid items with loadings between 0.709 and 0.813, with the highest loading on item GE6 (Green packaging serves as attractive branding, making products easier to sell to domestic and foreign tourists).

Table 5. displays the outer loading values for each indicator in the Green Product (X1), Green Packaging (X2), Purchase Decision (Y1), and Green Economy (Y2) constructs. All indicators have values above 0.7, indicating that convergent validity is met. For example, indicator GP9 (“availability of limited product choices with environmentally friendly packaging”) has the highest loading (0.857), which means it strongly represents the Green Product construct. The AVE values are also above 0.5 (X1 = 0.595; X2 = 0.612; Y1 = 0.636; Y2 = 0.574), confirming that more than 50% of the indicator's variance is explained by the construct.

Discriminant Validity. Cross loading values indicate that all items have higher loadings on their respective constructs compared to other variables. Factor loadings for each item are greater on their designated variables. The cross loading results are shown in Table 5. According to the Fornell Larcker Criterion, the square root of AVE for each construct is greater than its correlations with other variables, indicating good discriminant validity. The results are presented in Table 6 and Table 7

Table 6 presents the cross loading values, which are the correlations between indicators and their respective constructs compared to other constructs. The results indicate that each indicator has the highest loading on its original construct, thus achieving discriminant validity. For example, indicator PC7 ("environmentally friendly packaging designs tend to be less attractive") has a loading of 0.854 on Green Packaging, higher than the loadings on other variables, making this indicator valid for representing the PC construct.

Table 7 explains the Fornell Larcker Test, which compares the square root of the AVE of each construct with the correlation between constructs. The diagonal value (square root of the AVE) is always higher than the correlation value between variables. For example, Purchase Decision (0.798) is greater than its correlation with other variables. This ensures that each construct has sufficient conceptual uniqueness.

Table 5. Construct Validity Measurement Results

Item	Factor Loadings	Criterion	AVE	Criterion
X1 Green Product			0.595	Valid
GP1	0.803	Valid		

GP2	0.732	Valid		
GP3	0.763	Valid		
GP4	0.761	Valid		
GP5	0.757	Valid		
GP6	0.785	Valid		
GP7	0.728	Valid		
GP8	0.786	Valid		
GP9	0.857	Valid		
GP10	0.732	Valid		
X2 Green Packaging			0.612	Valid
PC1	0.759	Valid		
PC2	0.788	Valid		
PC3	0.787	Valid		
PC4	0.739	Valid		
PC5	0.743	Valid		
PC6	0.743	Valid		
PC7	0.854	Valid		
PC8	0.776	Valid		
PC9	0.812	Valid		
PC10	0.759	Valid		
PC11	0.806	Valid		
PC12	0.810	Valid		
Y1 Purchase Decisions			0.636	Valid
KM1	0.772	Valid		
KM2	0.846	Valid		
KM3	0.821	Valid		
KM4	0.728	Valid		
KM5	0.781	Valid		
KM6	0.831	Valid		
KM7	0.785	Valid		
KM8	0.786	Valid		
KM9	0.825	Valid		
KM10	0.794	Valid		
Y2 Green Economy			0.574	Valid
GE1	0.717	Valid		
GE2	0.736	Valid		
GE3	0.792	Valid		
GE4	0.727	Valid		
GE5	0.775	Valid		
GE6	0.813	Valid		
GE7	0.807	Valid		
GE8	0.767	Valid		
GE9	0.726	Valid		
GE10	0.709	Valid		

Source: (The Researchers, 2024)

Table 6. Cross Loading Values

	X1 Green Product	X2 Green Packaging	Y1 Purchasing Decision	Y2 Green Economy
GE 1	0.336	0.305	0.26	0.717
GE 10	0.306	0.243	0.387	0.709
GE 2	0.273	0.293	0.325	0.736
GE 3	0.387	0.329	0.503	0.792
GE 4	0.319	0.285	0.392	0.727
GE 5	0.334	0.403	0.644	0.775
GE 6	0.397	0.405	0.518	0.813
GE 7	0.382	0.469	0.467	0.807
GE 8	0.343	0.344	0.291	0.767
GE 9	0.384	0.395	0.427	0.726
GP 1	0.803	0.241	0.318	0.36
GP 10	0.732	0.125	0.396	0.317
GP 2	0.732	0.261	0.269	0.393
GP 3	0.763	0.092	0.3	0.332
GP 4	0.761	0.222	0.43	0.42
GP 5	0.757	0.076	0.22	0.233
GP 6	0.785	0.208	0.236	0.296
GP 7	0.728	0.15	0.307	0.222
GP 8	0.786	0.295	0.573	0.422
GP 9	0.857	0.229	0.456	0.422
KM 1	0.379	0.402	0.772	0.531
KM 10	0.428	0.457	0.794	0.389
KM 2	0.293	0.383	0.846	0.424
KM 3	0.272	0.387	0.821	0.366
KM 4	0.452	0.314	0.728	0.458
KM 5	0.437	0.3	0.781	0.458
KM 6	0.385	0.448	0.831	0.527
KM 7	0.469	0.33	0.785	0.472
KM 8	0.289	0.506	0.786	0.513
KM 9	0.421	0.416	0.825	0.422
PC 1	0.293	0.759	0.345	0.294
PC 10	0.229	0.759	0.357	0.431
PC 11	0.143	0.806	0.272	0.385
PC 12	0.17	0.81	0.375	0.311
PC2	0.186	0.788	0.373	0.367
PC 3	0.24	0.787	0.418	0.402
PC 4	0.102	0.739	0.14	0.197
PC 5	0.196	0.743	0.327	0.312
PC 6	0.179	0.743	0.558	0.415
PC 7	0.253	0.854	0.538	0.383
PC 8	0.274	0.776	0.344	0.405
PC 9	0.11	0.812	0.378	0.356

Table 7. Fornell Larcker results

	X1 Green Product	X2 Green Packaging	Y1 Purchase Decision	Y2 Green Economy
X1 Green Product	0.771			

X2 Green Packaging	0.259	0.782		
Y1 Purchase Decision	0.483	0.498	0.798	
Y2 Green Economy	0.46	0.468	0.577	0.758

Reliability

Reliability refers to the extent to which measurement results are accurate. Using SmartPLS, there are two types of reliability: item reliability and construct reliability. Item reliability measures how accurately and reliably each item of a construct performs. The metric used for item reliability is outer loading. The threshold value for item reliability is 0.7. Table 7 shows the item reliability, indicating that all items have outer loading values greater than the threshold. This demonstrates that all model items are reliable. Construct reliability assesses how reliable the overall construct is for further study. The metrics used for construct reliability are Composite Reliability and Cronbach's Alpha. The threshold value for both metrics is 0.7 or above. Table 8 also indicates that all constructs have Cronbach's Alpha and Composite Reliability values exceeding the threshold, confirming that all constructs are reliable.

Table 8. Results of Reliability Testing

Variable	Cronbach's Alpha	Composite Reliability	Criterion
X1 (Green Product)	0.925	0.936	Reliable
X2 (Green Packaging)	0.943	0.950	Reliable
Y1 (Purchase Decisions)	0.936	0.946	Reliable
Y2 (Green Economy)	0.918	0.931	Reliable

Cronbach's Alpha values for each variable exceed 0.7, indicating that the variables used—X1 (Green Product), X2 (Green Packaging), Y1 (Purchase Decision), and Y2 (Green Economy)—are reliable. Additionally, the Composite Reliability values for each variable are also greater than 0.7, confirming that these variables are categorized as having high reliability.

Structural Model (Inner Model)

In this study, the structural model was analyzed using Smart PLS software. The resulting structural diagram is shown in Figure 2 and Figure 3.

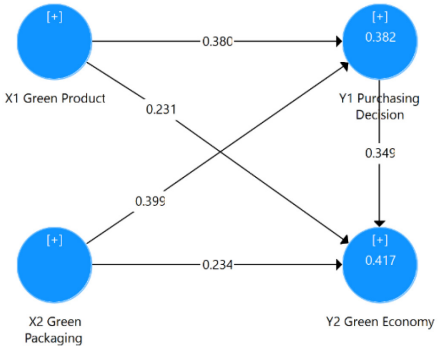

Figure 2. Structural Model

Based on the above diagram, the structural model equations are as follows:

1. Y1 = 0.380 X1 + 0.399 X2 + ei1; R2 = 0.382;
2. Y2 = 0.231 X1 + 0.234 X2 + 0.349 Y1 + ei2; R2 = 0.417.

Where:
X1: Green Product
X2: Green Packaging
Y1: Purchase Decision
Y2: Green Economy
ei: Residual

Figure 2 presents the structural model focusing on the direct effects of Green Product (X1) and Green Packaging (X2) on Purchase Decision (Y1). The results show that both predictors have significant and positive effects on purchase decisions. Specifically:

Green Product → Purchase Decision: $\beta = 0.380$, $t = 4.735$, $p < 0.001$, $f^2 = 0.145$, 95% CI [0.218, 0.532].

This indicates that environmentally friendly product attributes strongly enhance consumers' likelihood of making eco conscious purchase decisions.

Green Packaging → Purchase Decision: $\beta = 0.399$, $t = 5.581$, $p < 0.001$, $f^2 = 0.167$, 95% CI [0.248, 0.544]

Packaging innovations serve as a critical determinant of consumer choices, underscoring the strategic role of sustainable packaging in influencing market behavior.

The explanatory power of the model is reflected in $R^2 = 0.382$, meaning that 38.2% of the variance in purchase decisions is explained by the joint influence of green product and green packaging. This confirms the theoretical prediction that consumer purchase behavior is shaped by product and packaging level sustainability attributes, consistent with the Theory of Planned Behavior.

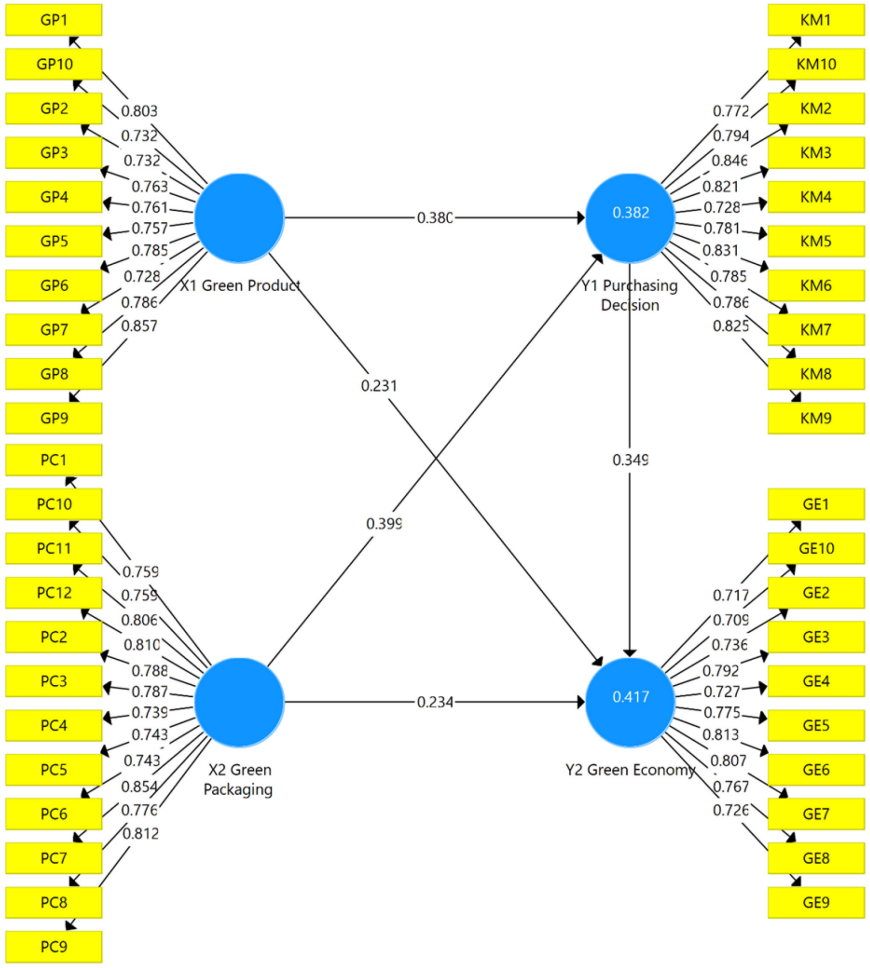

Figure 3. Detail Structural Model

Figure 3 extends the analysis by incorporating Green Economy (Y2) as an outcome variable, with Purchase Decision (Y1) acting as a mediator. The findings demonstrate significant direct and indirect relationships:

Direct Effects:

Green Product → Green Economy: β = 0.231, t = 2.257, p = 0.024, f^2 = 0.062, 95% CI [0.042, 0.389].

Green Packaging → Green Economy: β = 0.234, t = 2.249, p = 0.025, f^2 = 0.059, 95% CI [0.035, 0.390].

Purchase Decision → Green Economy: β = 0.349, t = 2.467, p = 0.014, f^2 = 0.124, 95% CI [0.071, 0.514].

These results indicate that both product and packaging attributes directly contribute to economic sustainability, while consumer purchase behavior further amplifies this contribution.

Indirect Effects (Mediation):

Green Product → Purchase Decision → Green Economy: β = 0.133, t = 2.226, p = 0.026, f^2 = 0.051, 95% CI [0.021, 0.261]

Green Packaging → Purchase Decision → Green Economy: β = 0.139, t = 2.354, p = 0.019, f^2 = 0.057, 95% CI [0.029, 0.274].

These findings confirm the mediating role of consumer purchase decisions, showing that environmentally friendly practices exert their greatest influence on the green economy when translated into actual consumer behavior. The explanatory power of the extended model is reflected in R^2 = 0.417, meaning that 41.7% of the variance in green economy outcomes is explained jointly by green product, green packaging, and purchase decisions. The Goodness of Fit (GoF) index of 0.492 suggests a large effect size, demonstrating that the model is both theoretically robust and empirically well-fitted.

However, the strength of the direct paths from green product → green economy and green packaging → green economy was relatively weak (β around 0.23), with marginal t-statistics just above 2.0. Additionally, several measurement items, such as GP7 (reasonably priced for consumers) and GE10 (export potential limited by production scale), showed lower loadings compared to other items, indicating that not all dimensions were equally valued by consumers. These findings highlight the presence of unexpected or weaker than anticipated effects that warrant closer interpretation.

Model Evaluation

The evaluation of the inner model includes the following tests: (1) Coeffi-cient of Determination (R^2) to measure the proportion of variance in the dependent variables explained by the independent variables; (2) Predictive Relevance (Q^2) to assess the model's predictive capability; and (3) Goodness of Fit Index (GoF) to evaluate the overall fit of the model.

1) Coefficient of Determination (R2)

The coefficient of determination (R^2) for the models is as follows:

For Model 1, which assesses the impact of variables X1 (Green Product) and X2 (Green Packaging) on Y1 (Purchase Decision), the R^2 value is 0.382 or 38.2%.

For Model 2, which assesses the impact of variables X1 (Green Product), X2 (Green Packaging), and Y1 (Purchase Decision) on Y2 (Green Economy), the R^2 value is 0.417 or 41.7%.

The results of the coefficient of determination are detailed in Table 9.

Table 9. Coefficient of Determination Results

Effect	R-Square
X1, X2 → Y1	0.382
X1, X2, Y1 → Y2	0.417

2) Goodness of Fit Index (GoF)

The Goodness of Fit (GoF) test is conducted to assess the overall fit of the model by multiplying the average values of the coefficient of determination (R^2) and the average variance extracted (AVE). The formula is:

$$GoF = \sum \sqrt{\overline{AVE} \times \overline{R^2}}$$

$$GoF = \sqrt{0.605 \times 0.400} = 0.492$$

A GoF value of 0.492 indicates that the model's fit is considered large (> 0.36).

3) Hypothesis Testing

This section evaluates the coefficients or parameters indicating the influence of one latent variable on another. An effect is considered significant if the p-value is less than 0.05 and not significant if the p-value is greater than 0.05. The results from the SmartPLS software are as follows:

a) Direct Effects Hypotheses

Variable X1 (Green Product) has a positive and significant effect on variable Y1 (Purchase Decision). The T-statistic value is greater than the critical value (4.735 > 1.96), and the p-value is smaller than α (0.000 < 0.050). The positive coefficient indicates that an increase in variable X1 (Green Product) can significantly enhance variable Y1 (Purchase Decision).

Variable X2 (Green Packaging) also has a positive and significant effect on variable Y1 (Purchase Decision). The T-statistic value exceeds the critical value (5.581 > 1.96), and the p-value is smaller than α (0.000 < 0.050). The positive coefficient suggests that an increase in variable X2 (Green Packaging) can significantly improve variable Y1 (Purchase Decision).

Variable X1 (Green Product) has a positive and significant effect on variable Y2 (Green Economy). The T-statistic value is greater than the critical value (2.257 > 1.96), and the p-value is smaller than α (0.024 < 0.050). The positive coefficient indicates that an increase in variable X1 (Green Product) can significantly enhance variable Y2 (Green Economy).

Variable X2 (Green Packaging) has a positive and significant effect on variable Y2 (Green Economy). The T-statistic value is greater than the critical value (2.249 > 1.96), and the p-value is smaller than α (0.025 < 0.050). The positive coefficient suggests that an increase in variable X2 (Green Packaging) can significantly improve variable Y2 (Green Economy).

Variable Y1 (Purchase Decision) has a positive and significant effect on variable Y2 (Green Economy). The T-statistic value is greater than the critical value (2.467 > 1.96), and the p-value is smaller than α (0.014 < 0.050). The positive coefficient indicates that an increase in variable Y1 (Purchase Decision) can significantly enhance variable Y2 (Green Economy). The results can be seen in Table 10.

Table 10. Results of Effect Analysis with T-statistic

Effect	Path Coefficient	T statistics	p-values	Criterion
X1 → Y1	0.380	4.735	0.000	Significant
X2 → Y1	0.399	5.581	0.000	Significant
X1 → Y2	0.231	2.257	0.024	Significant
X2 → Y2	0.234	2.249	0.025	Significant
Y1 → Y2	0.349	2.467	0.014	Significant

b) Indirect Effect Hypotheses

The indirect effect of variable X1 (Green Product) on variable Y2 (Green Economy) through variable Y1 (Purchase Decision) is significant. The T-statistic value is greater than the critical value (2.226 > 1.96), and the p-value is smaller than α (0.026 < 0.050). The variable Y1 (Purchase Decision) mediates the effect of the variable X1 (Green Product) on Y2 (Green Economy); it is a partial mediation, as the direct effect of X1 on Y2 is also significant.

The indirect effect of variable X2 (Green Packaging) on variable Y2 (Green Economy) through variable Y1 (Purchase Decision) is significant. The T-statistic value is greater than the critical value (2.354 > 1.96), and the p-value is smaller than α (0.019 < 0.050). The variable Y1 (Purchase Decision) mediates the effect of X2 (Green Packaging) on Y2 (Green Economy); it is a partial mediation, as the direct effect of X2 on Y2 is also significant. The results can be seen in Table 11.

Table 11. Results of Indirect Effect Hypothesis Testing

Effect	Path Coefficient	T statistics	p-values	Criterion
X1 → Y1 → Y2	0.133	2.226	0.026	Significant
X2 → Y1 → Y2	0.139	2.354	0.019	Significant

DISCUSSION

The goal of this study was to examine the impact of green products and green packaging on consumer decisions and the green economy. Previous research has explored consumer perceptions of environmentally friendly and sustainable packaging[69], and how communication with consumers influences their buying intentions [70]. Most research has focused on how environmental issues affect the intention to buy eco-friendly alternatives [71], [72]. However, few studies have investigated the influence of green products and green packaging on green economy decisions. The rising environmental awareness among consumers, particularly Generation Z, presents an opportunity for marketers to understand their product choices better [69].

The findings from this study show that all direct effects hypotheses are positively significant. This aligns with previous research confirming that most consumers are willing to pay more for environmentally friendly packaging [33]. Given the current value consumers place on environmental benefits, pricing is no longer a barrier [73]. Additionally, consumer shopping habits and their environmental concern reflect their eco-friendly lifestyle, consistent with previous studies [74].

The study also found that all indirect effects hypotheses are positively significant. This is attributed to consumers' purchase intentions being driven by self-awareness [75]. Increased awareness of environmental protection causes consumers to be more selective when choosing packaging products, expecting them to be environmentally friendly, properly labeled, and informative. This finding supports existing literature on the relationship between packaging and purchase intention [76]. The study highlights five supporting factors: (a) better product quality, (b) following market trends, (c) market share, (d) community empowerment, and (e) government support.

While these findings provide optimistic evidence about the potential of green products and packaging to accelerate the green economy, it is important to reflect on the realities and risks of greenwashing. Greenwashing occurs when consumers or producers perceive themselves as more responsible and sustainable than they actually are by engaging in or promoting "green purchases." Previous research suggests that greenwashing can create false perceptions of environmental progress, mislead stakeholders, and ultimately undermine trust in sustainability claims. For consumers, the risk lies in believing that purchasing a single green product will exempt them from broader behavioral changes. For producers, particularly SMEs, there is a temptation to adopt superficial strategies such as eco-colored packaging or vague sustainability claims without implementing substantive improvements in sourcing, production, or waste reduction.

Better Product Quality

Green packaging is produced to high standards, particularly in terms of safety, durability, and environmental impact. This aligns with findings from previous studies showing that green products have high quality production standards and healthier materials [77]. Furthermore,

previous research has found that consumers are willing to pay more when they perceive environmentally friendly products to offer tangible benefits such as increased safety and durability, an observation [78]. That aligns with the willingness to pay pattern observed in this study among environmentally conscious consumers in East Java [33].

Consumers evaluate environmentally friendly products not only based on price but also on perceived added value in terms of quality and sustainability. The positive relationship found here between environmentally friendly product adoption and purchasing decisions highlights that SMEs producing higher quality environmentally friendly goods are more successful in attracting environmentally conscious consumers. Furthermore, the use of environmentally friendly packaging is beneficial in significantly reducing plastic waste. Furthermore, green packaging can enhance the industry's branding and reputation. New entrants innovating in creating products with green packaging further support the continuation of the green packaging movement [79].

Figure 4. Green Packaging for Telemung Coffee in Banyuwangi

Figure 4 shows the Telemung Coffee SME in Banyuwangi using green packaging. The coffee packaging uses biodegradable materials as a branding strategy for the coffee product [80]. Furthermore, green packaging serves to naturally maintain the quality and aroma of the coffee [81]. This is also relevant to previous research findings that coffee aroma lasts longer when using green packaging [82]. Furthermore, the use of green packaging not only attracts environmentally conscious consumers but also strengthens the product's appeal to local tourism [83]. This is evident in the study's findings that green packaging has a significant influence on purchasing decisions with a significance value ($\beta = 0.399$, $p < 0.001$).

Figure 5. Apple Pies from Batu City

Figure 5 shows the use of green packaging for apple pies in Batu City, which uses environmentally friendly materials, namely cardboard. The material adapted for apple pie packaging is designed to be biodegradable. Furthermore, a simple yet attractive design is

applied as a local identity and sustainability values. Environmentally friendly practices through the implementation of green packaging reflect that SMEs are not only adapting to consumer preferences for environmentally friendly products but also aligning their marketing strategies with current sustainability trends [33]. This aligns with findings from previous research that sustainability-oriented packaging, such as green packaging, is not only a global trend but also relevant for local products [58].

Following Current Market Trends

The results of this study indicate that consumers' alignment with current market trends in sustainability significantly influences their purchasing decisions for green products and packaging. This finding aligns with previous research showing that increasing environmental awareness and the popularity of sustainability movements create social pressure that shapes consumer preferences [84]. Furthermore, previous findings suggest that consumers increasingly consider green products and packaging as part of broader lifestyle choices, even when these products are priced higher than conventional alternatives [85].

Additionally, the influence of branding on social media, where awareness of green products and green packaging is increasingly prevalent, has been shown to positively enhance consumer awareness [86]. The popularity of green packaging presents a significant opportunity for sustainability [87]. There's evidence that Gen Z, who are active on social media, are motivated to choose green packaging [88]. Green packaging serves as an attractive branding tool, making products easier to sell to both domestic and international tourists. As illustrated in Figure 6, the online store of Omah Kopi Telemung in Banyuwangi is an example of the role of e-commerce in supporting green products.

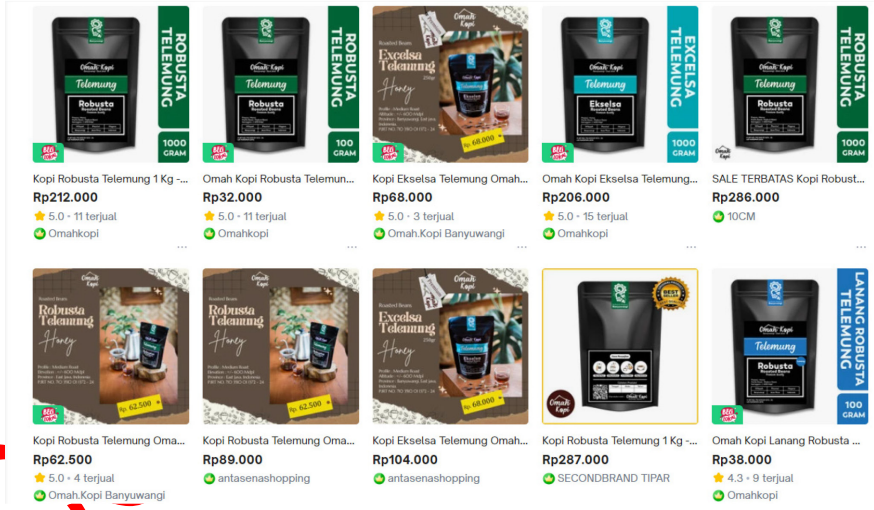

Figure 6. Online Showcase of Green Products at Omah Kopi Telemung, Banyuwangi
Source: (E-commerce Tokopedia.com, 2024)

Figure 6 shows the Omah Kopi Telemung online store in Banyuwangi as a strategy to support environmentally friendly products. The online store, by implementing e-commerce as its platform, can provide wider market access for coffee products [89]. The main focus of marketing is emphasizing sustainability and adapting green packaging, as well as marketing using e-commerce, which is a good strategy. This is in line with previous findings that through collaboration between e-commerce and sustainability values in green packaging, consumers are subconsciously increasing awareness of the importance of protecting the environment through the use of green packaging [90]. Omah Kopi Telemung reflects how e-commerce contributes to the green economy by reducing marketing barriers, expanding consumer reach, and supporting small-scale producers committed to environmentally friendly practices.

Recognizing the Niche Market for Green Products

Green products with green packaging are known to have a distinct appeal in attracting consumers [91]. This correlates with a shift in preference from conventional products to more sustainable ones, facilitated by the increased accessibility of information [92]. Prospective consumers are increasingly seeking detailed information about the origins of products, the materials used, and the environmental impact of their production, making green products and green packaging more prominent [92]. Moreover, e-commerce plays a significant role in branding [93], enabling green products from local industries to be effectively distributed online.

For example, eco-print products are produced in Pamakesan, Madura Island. Eco-printing is considered more economical due to its simple process and use of natural dyes derived from local plants, such as leaves, flowers, and twigs, which helps reduce production costs. These natural materials replace synthetic dyes that can harm the environment. By reducing the use of hazardous chemicals, eco-printed fabrics help maintain water quality and decrease environmental pollution. Eco-print products include batik fabrics, tote bags, hats, wallets, and sandals. The packaging for these eco-print products uses paper made from wood pulp, which makes both the products and their packaging environmentally friendly due to the absence of synthetic dyes. These products can be seen in Figure 7.

Figure 7. Eco-Print Products in Pamekasan, Madura

Additionally, Pamekasan is also known for its fisheries. Fish catches are sold in containers made from bamboo, locally known as "rantang". Bamboo weaving as packaging is cost-effective and customizable, providing a sturdy and durable packaging solution. Bamboo containers are used not only for fish but also for shrimp paste. Most fish and shrimp paste vendors in Madura already use "rantang". However, some small and medium sized enterprises (SMEs) still use plastic packaging due to its availability, practicality, and lower production costs compared to green packaging. This aligns with previous research showing that plastic packaging is easier to produce [94]. Furthermore, the production costs of green packaging do not differ significantly from those of non-environmentally friendly packaging [95].

The Role of Government in Community Empowerment

The development and innovation of green products can be sustainable if they provide and receive benefits for local communities. For example, "UD. Widya Handicraft" in Rogojampi District, Banyuwangi, produces various bamboo crafts sourced from local bamboo farms. Besides purchasing raw materials from local communities, the handicraft managers also provide training to residents to ensure sustainability [96]. Sustainable environmental training has been proven to increase local bamboo craft production [97]. The products from Widya Handicraft are widely exported to Japan and Spain. The image can be seen in Figure 8

Figure 8. Widya Handicraft in Banyuwangi

Policy and Support from Local and Central Governments

Support from local governments in implementing eco-friendly programs is effective in reducing the use of single-use products or packaging [98]. Banyuwangi has "Green Banyuwangi", a program that includes a policy banning SMEs from using plastic packaging. This regulation has been gradually implemented, as evidenced by the shift towards non-single-use packaging among some SMEs. Interviews with vendors using green packaging revealed that the cost of this packaging is not significantly different from that of plastic packaging [53]. Educating other SMEs about green packaging is crucial to reduce plastic waste.

Synthetic plastic products cause significant environmental change [99]. It is proven that environmental disasters such as damage to soil fertility, water pollution and climate change are caused by synthetic plastics [100]. As plastic damages ecosystem damage, consumers need to engage in sustainable consumption that does not harm the environment. One way to support sustainable consumption is by switching to green products and green packaging. Green products have been shown to reduce harmful environmental effects, decrease toxic substances, address health issues, improve recycling, and enhance environmental friendliness [33].

However, beyond encouraging substitution from conventional to green products, it is equally important for policy frameworks to acknowledge the virtue of abstaining—the decision to not purchase potentially unnecessary products at all. From a sustainability standpoint, abstaining represents an even greener choice, as it completely eliminates the environmental costs of production, distribution, and disposal, regardless of whether the product is eco-labeled or not. Incorporating this perspective, governments could design campaigns not only promoting eco-friendly consumption but also encouraging sufficiency-oriented lifestyles, such as buying less, prioritizing essential goods, and extending product lifespans.

LIMITATIONS AND SUGGESTIONS

This research contributes theoretically by extending consumer behavior research by integrating purchasing decisions into a broader green economy framework. Furthermore, it demonstrates that sustainable consumption practices influence economic transformation. Furthermore, this research provides strategic insights for SMEs, emphasizing that environmentally friendly business practices not only enhance consumer trust and brand value but also serve as strategic levers for reducing plastic waste and accelerating the green economy transition.

Despite these contributions, the study has several limitations. First, the study is limited to SMEs in the tourism sector in East Java. This limitation in the research location could be addressed in future research by expanding the research location and adding new variables to

provide novelty. Furthermore, this study focuses on local consumers, while the influence of global markets and digital platforms remains underexplored. Future studies should investigate how international consumer demand, e-commerce platforms, and social media engagement influence the adoption of environmentally friendly products and packaging.

CONCLUSIONS

This study provides empirical evidence on the role of green products and green packaging in shaping consumer purchase decisions and their subsequent contribution to the green economy. The structural equation modeling (SEM) results confirm that green products ($\beta = 0.380$; $T = 4.735$; $p < 0.001$) and green packaging ($\beta = 0.399$; $T = 5.581$; $p < 0.001$) significantly influence purchase decisions, explaining 38.2% of their variance ($R^2 = 0.382$). Furthermore, both green products ($\beta = 0.231$; $T = 2.257$; $p = 0.024$) and green packaging ($\beta = 0.234$; $T = 2.249$; $p = 0.025$) directly enhance the green economy, while purchase decisions ($\beta = 0.349$; $T = 2.467$; $p = 0.014$) serve as a critical determinant, increasing the model's explanatory power for the green economy to 41.7% ($R^2 = 0.417$). Mediation analysis further shows that purchase decisions partially mediate the relationship between green products ($\beta = 0.133$; $T = 2.226$; $p = 0.026$) and green packaging ($\beta = 0.139$; $T = 2.354$; $p = 0.019$) with the green economy, highlighting their central role in translating sustainable practices into economic outcomes.

The implementation of Green Products, Green Packaging, and Green Economy will be sustainable if SMEs in East Java can (1) follow current market trends, (2) recognize that products have a specific market niche, (3) empower the community, and (4) ensure the successful and sustainable implementation of Green Economy policies with support from local and central governments. Practically, this research provides actionable insights for SMEs to reduce plastic waste, enhance eco-branding, and improve competitiveness, while policymakers should design incentives and regulatory frameworks to accelerate the transition toward a green economy.

Nevertheless, the study is limited by its focus on SMEs in East Java's tourism sector and the use of cross sectional data. Future research should expand the scope across regions and industries, employ longitudinal designs to capture dynamic consumer behavior, and integrate behavioral or experimental data to validate self reported measures. Moreover, investigating the role of renewable energy adoption, digital platforms, and social media in shaping green consumerism would enrich the understanding of sustainable business practices in emerging economies.

ACKNOWLEDGEMENTS

The authors acknowledge research funding support from the Research and Community Service Institute (LPPM) of Universitas Negeri Malang through PTNBH Collaborative Research initiatives. Special recognition goes to the Kemiren village community for their generous participation and collaboration. The research team declares no conflicts of interest regarding individuals or groups involved in this study.

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