



**International Journal of Green Economics**

ISSN online: 1744-9936 - ISSN print: 1744-9928

<https://www.inderscience.com/ijge>

---

**Sustainable consumer choices: the role of green products, pricing, and marketing in Indonesia's tissue industry**

Mu'ah, Mesra Surya Ariefin, Slamet Riyadi, Donny Arif

**DOI:** [10.1504/IJGE.2025.10074015](https://doi.org/10.1504/IJGE.2025.10074015)

**Article History:**

Received:	12 March 2025
Last revised:	30 May 2025
Accepted:	13 June 2025
Published online:	17 October 2025

---

# Sustainable consumer choices: the role of green products, pricing, and marketing in Indonesia's tissue industry

---

Mu'ah\* and Mesra Surya Ariefin

Institut Teknologi dan Bisnis Ahmad Dahlan Lamongan,  
Jl. KH. Ahmad Dahlan No. 41, Jetis, Kec. Lamongan,  
Kabupaten Lamongan, Jawa Timur 62218, Indonesia

Email: muah@ahmaddahlan.ac.id

Email: mesra.s.a@ahmaddahlan.ac.id

\*Corresponding author

Slamet Riyadi

Universitas 17 Agustus 1945 Surabaya,  
Jl. Semolowaru No. 45, Menur Pumpungan,  
Kec. Sukolilo, Surabaya, Jawa Timur 60118, Indonesia  
Email: slametriyadi10@untag-sby.ac.id

Donny Arif

Universitas Maarif Hasyim Latif,  
Jl. Raya Ngelom Megare No. 30, Ngelom,  
Kec. Taman, Kabupaten Sidoarjo, Jawa Timur 61257, Indonesia  
Email: doni\_arif@dosen.umaha.ac.id

**Abstract:** This study examines the influence of green products, green prices, and green marketing on environmental awareness and purchasing decisions, with environmental awareness as a mediating variable. The results indicate that all three factors significantly impact environmental awareness, which in turn positively influences purchasing decisions. Green marketing has the most potent effect, followed by green products and green prices. Mediation analysis reveals that environmental awareness partially mediates the relationship between green products and green marketing on purchasing decisions, while it strongly mediates the effect of green prices. These findings highlight the importance of integrating sustainability in product development, pricing strategies, and marketing efforts. Businesses should enhance transparency, educate consumers on sustainability benefits, and implement effective green marketing campaigns. This study contributes to the understanding of green consumer behaviour and provides strategic insights for businesses promoting sustainable consumption. Future research could explore additional mediators, such as consumer trust and perceived value.

**Keywords:** green products; green pricing; environmental awareness; green marketing; purchasing decisions; Indonesia.

**Reference** to this paper should be made as follows: Mu'ah, Ariefin, M.S., Riyadi, S. and Arif, D. (2025) 'Sustainable consumer choices: the role of green products, pricing, and marketing in Indonesia's tissue industry', *Int. J. Green Economics*, Vol. 19, No. 5, pp.1–19.

**Biographical notes:** Mu'ah has actively contributed to the development of higher education, particularly in strengthening institutional governance, fostering entrepreneurship, and integrating technology in academic practices. Her leadership is marked by a commitment to quality, innovation, and the promotion of integrity in higher education.

Mesra Surya Ariefin is a permanent lecturer at the Institut Teknologi dan Bisnis Ahmad Dahlan Lamongan. He obtained her Doctorate in Economics from Universitas 17 Agustus 1945 Surabaya in 2024, and previously earned her Master's degree in Management from Universitas Brawijaya Malang in 2019. With a strong academic foundation in economics and management, she is committed to advancing research, teaching, and community engagement in economic development and business innovation. Her educational journey reflects a dedication to continuous learning and contribution to higher education in Indonesia.

Slamet Riyadi is a distinguished academic and expert in Accounting and Finance, currently serving as the Dean of the Faculty of Economics and Business at Universitas 17 Agustus 1945 Surabaya. Holding a Master of Science and a Doctorate in Economics, his academic journey has been marked by a deep commitment to advancing knowledge and practice in financial management and corporate governance. With the academic rank of Professor, he is widely recognised for his contributions to research, policy consultation, and curriculum development in the field of economics and business. His leadership continues to shape the future of economic education in Indonesia, combining academic excellence with practical insight.

Donny Arif is a Lecturer and researcher specialising in Management Information Systems at Universitas Maarif Hasyim Latif, Sidoarjo, Indonesia. He earned his Master's in Management from Universitas 17 Agustus 1945 Surabaya, and is pursuing his Doctorate in Economics at the same university. As an active academic, he is involved in research and scholarly writing, particularly in digital business, strategic management, and sustainable development. He has published numerous articles in international journals and holds a Scopus H-index of 7, reflecting the impact of his work in the global academic community.

---

## 1 Introduction

The global shift towards sustainability has significantly influenced consumer behaviour and business practices worldwide. As environmental concerns such as climate change, pollution, and resource depletion continue to escalate, consumers are becoming more conscious of their purchasing decisions, favouring environmentally friendly products (Purcărea et al., 2022). This trend has led to the emergence of green marketing, where companies emphasise the ecological benefits of their products to attract environmentally aware consumers. In Indonesia, a country with a growing economy and increasing

environmental challenges, adopting green practices in industries such as tissue manufacturing has become a critical study area.

While essential for daily life, the tissue manufacturing industry has often been associated with environmental degradation due to deforestation, water consumption, and waste generation. However, recent efforts by companies to produce eco-friendly tissues, such as using recycled materials, reducing carbon footprints, and obtaining sustainability certifications, have sparked interest in understanding how these initiatives influence consumer purchasing decisions. Despite these efforts, there is limited research on how factors like green products, green pricing, environmental awareness, and green marketing collectively impact consumer behaviour in this specific industry, particularly in the context of Indonesia.

This study aims to address this gap by examining the relationship between green products, green pricing, environmental awareness, and green marketing on purchasing decisions within the tissue manufacturing industry in Indonesia. By focusing on these four key variables, the research provides insights into how companies can effectively align their marketing strategies with consumer preferences for sustainable products. Additionally, the findings will contribute to the broader discourse on sustainable consumption and green marketing in emerging markets (Halik et al., 2024).

The significance of this study lies in its potential to inform both academic and practical applications. For academics, it offers a deeper understanding of the factors driving green purchasing decisions in a developing country. For businesses, particularly in the tissue manufacturing industry, the results can guide the development of marketing strategies that resonate with environmentally conscious consumers, ultimately fostering sustainable growth. Furthermore, this research aligns with Indonesia's national agenda to promote sustainable development and environmental conservation, as outlined in the country's sustainable development goals (SDGs).

Problem formulation:

- 1 To what extent does green products influence environmental awareness?
- 2 To what extent does green price influence environmental awareness?
- 3 To what extent does green marketing influence environmental awareness?
- 4 To what extent does green products influence purchasing decisions?
- 5 To what extent does green price influence purchasing decisions?
- 6 To what extent does green marketing influence purchasing decisions?
- 7 To what extent does environmental awareness influence purchasing decisions?
- 8 Does environmental awareness mediate the relationship between green products and purchasing decisions?
- 9 Does environmental awareness mediate the relationship between green prices and purchasing decisions?
- 10 Does environmental awareness mediate the relationship between green marketing and purchasing decisions?

This study explores the interplay between green products, green pricing, environmental awareness, and green marketing in shaping consumer purchasing decisions within the

tissue manufacturing industry in Indonesia. The research aims to provide valuable insights for theoretical advancement and practical implementation in pursuing sustainability by addressing this underexplored area.

## 2 Literature review

### 2.1 *Green products on purchasing decisions*

Green products have gained significant attention in recent years as consumers become more environmentally conscious. Green products are defined as goods designed, produced, and distributed to minimise their environmental impact, such as using sustainable materials, reducing energy consumption, and avoiding harmful chemicals (Anshori et al., 2025). The relationship between green products and purchasing decisions has been widely studied, with researchers exploring how the environmental attributes of products influence consumer behaviour.

Several studies have shown that green products positively impact purchasing decisions. For instance, Panda et al. (2020) found that consumers are more likely to purchase products that are perceived as environmentally friendly as they align with their values of sustainability and environmental responsibility. This is particularly true for consumers with high ecological awareness, who prioritise eco-friendly attributes when purchasing. Similarly, a study by Tawde and RV (2024) revealed that green products often create a sense of ethical satisfaction among consumers, which enhances their willingness to buy.

However, the relationship between green products and purchasing decisions is not always straightforward. Some studies have identified barriers that may hinder the adoption of green products, such as higher prices, lack of availability, or skepticism about the authenticity of green claims (Nguyen et al., 2019). For example, consumers may be reluctant to purchase green products if they perceive them as less effective or more expensive than conventional alternatives. This highlights the importance of ensuring that green products meet environmental standards and deliver comparable quality and value.

The impact of green products on purchasing decisions is particularly relevant in the tissue manufacturing industry. Tissues made from recycled materials or sustainably sourced fibres are increasingly marketed as eco-friendly alternatives to traditional products. Research (Omuom, 2020) suggests that consumers are more likely to choose green tissue products when they are informed about the environmental benefits, such as reduced deforestation and lower carbon emissions. However, the success of these products depends on effective communication and transparency in marketing efforts.

### 2.2 *Green price on purchasing decisions*

Green pricing refers to setting prices for environmentally friendly products, often reflecting the additional costs associated with sustainable production methods, such as using renewable resources, eco-friendly materials, or ethical labour practices (Ghosh et al., 2020). The relationship between green pricing and purchasing decisions is complex, as it involves balancing consumers' willingness to pay a premium for sustainability with their sensitivity to price changes.

Research has shown that highly environmentally conscious consumers are often willing to pay a higher price for green products. For instance, a study by Granato et al. (2022) found that consumers with strong environmental values perceive green products as more valuable and are more likely to accept higher prices as a trade-off for sustainability. This willingness to pay a premium is driven by the belief that purchasing green products contributes to environmental preservation and aligns with their ethical values.

However, the impact of green pricing on purchasing decisions is not uniform across all consumer segments. Price sensitivity remains a significant barrier for many consumers, particularly in price-driven markets. A study (Berger, 2019) revealed that while consumers express positive attitudes toward green products, they are often unwilling to pay a premium if the price difference between green and conventional products is too high. This suggests that green pricing strategies must carefully consider the economic constraints of target consumers.

In the tissue manufacturing industry context, green pricing plays a crucial role in influencing purchasing decisions. Tissues produced from recycled materials or sustainably sourced fibres often incur higher production costs, reflected in their retail prices. Research (Kamboj and Matharu, 2021) indicates that consumers are more likely to purchase green tissue products when the price premium is justified by clear communication of environmental benefits, such as reduced carbon footprints or conservation of natural resources. However, if the price difference is perceived as excessive or unjustified, consumers may opt for cheaper, non-green alternatives.

### *2.3 Environmental awareness on purchasing decisions*

Environmental Awareness refers to the extent to which individuals are informed about environmental issues and understand the impact of their actions on the environment (Ojo and Fauzi, 2020). Over the past decade, increasing awareness of global environmental challenges, such as climate change, deforestation, and pollution, has significantly influenced consumer behaviour. This has led to a growing demand for environmentally friendly products as consumers seek to align their purchasing decisions with their environmental values.

Research consistently shows a positive relationship between environmental awareness and green purchasing decisions. For instance, a (Moser, 2015) study found that consumers with higher ecological awareness are more likely to purchase green products as they perceive their choices as contributing to environmental preservation. These consumers prioritise sustainably produced, eco-labelled, or made from recycled materials, even if they come at a higher cost.

The theory of planned behaviour (De Keyser et al., 2015) provides a valuable framework for understanding this relationship. According to the Theory, environmental awareness shapes consumers' attitudes toward green products, influencing their intentions and purchasing behaviour. For example, consumers aware of plastic waste's negative environmental impact are more likely to choose biodegradable or reusable alternatives. This suggests that ecological awareness acts as a key driver of pro-environmental behaviour.

However, the impact of environmental awareness on purchasing decisions is not always direct. Studies have identified several mediating factors, such as perceived consumer effectiveness (PCE) and social norms. PCE refers to the belief that individual

actions can make a difference in addressing environmental problems (Hanss and Doran, 2020). Consumers with high environmental awareness and strong PCE are likely to translate their awareness into action by purchasing green products. Similarly, social norms, such as the behaviour of peers or societal expectations, can amplify the influence of environmental awareness on buying decisions (Lin and Niu, 2018).

In the tissue manufacturing industry, environmental awareness plays a critical role in shaping consumer preferences. As tissues are often associated with deforestation and waste generation, environmentally aware consumers are likelier to choose products made from recycled materials or sustainably sourced fibres. A study by Moshood et al. (2022) found that consumers who are informed about the environmental benefits of green tissue products, such as reduced carbon emissions and conservation of natural resources, are more willing to purchase them, even at a premium price.

## 2.4 *Green marketing on purchasing decision*

Green marketing refers to promoting products or services based on environmental benefits, such as sustainability, eco-friendliness, and ethical production practices (Savale et al., 2023). As environmental concerns grow globally, green marketing has become a powerful tool for influencing consumer behaviour and purchasing decisions. This approach highlights the ecological attributes of products and aligns with the values of environmentally conscious consumers.

Research has demonstrated that green marketing significantly impacts purchasing decisions by shaping consumer perceptions and attitudes. A study by Huang et al. (2024) found that effective green marketing strategies, such as eco-labelling, transparent communication, and emphasising sustainability, can enhance consumers' trust and willingness to purchase green products. When consumers perceive that a company is genuinely committed to environmental responsibility, they are likelier to choose its products over conventional alternatives.

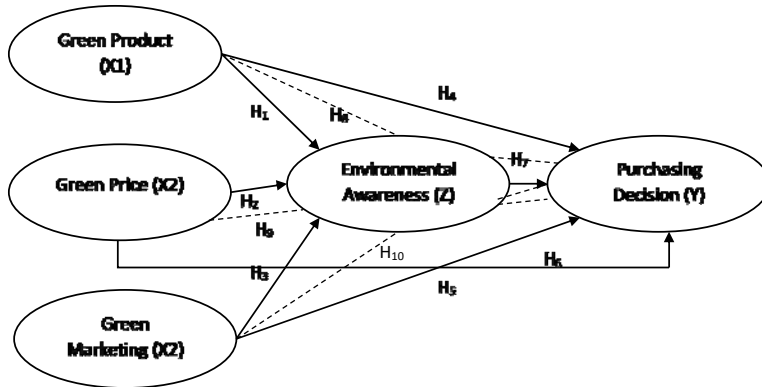
One of the key mechanisms through which green marketing influences purchasing decisions is by creating a sense of ethical satisfaction among consumers. According to Paço and Gouveia Rodrigues (2016), consumers who buy green products often feel they contribute to a more significant cause, such as environmental preservation or social responsibility. This emotional connection strengthens their loyalty to green brands and encourages repeat purchases. For example, companies that market their products as 'carbon-neutral' or 'made from 100% recycled materials' can appeal to consumers' desire to make a positive impact.

However, the effectiveness of green marketing depends on its authenticity and credibility. Consumers are increasingly skeptical of 'greenwashing', where companies exaggerate or falsely claim environmental benefits (Szabo and Webster, 2021). If consumers perceive that a company's green marketing efforts are insincere or misleading, it can lead to distrust and negatively impact purchasing decisions. Therefore, transparency and consistency in green marketing practices are crucial for building and maintaining consumer trust.

In the tissue manufacturing industry context, green marketing plays a vital role in differentiating products in a competitive market. Tissues marketed as 'eco-friendly', 'biodegradable', or 'sustainably sourced' can attract environmentally conscious consumers. A study by Huang et al. (2024) found that consumers are more likely to purchase green tissue products when companies effectively communicate the

environmental benefits, such as reduced deforestation, lower carbon emissions, and minimal chemical usage. Additionally, certifications from recognised ecological organisations (e.g., FSC or rainforest alliance) can enhance the credibility of green marketing efforts.

**Figure 1** Conceptual framework



### 3 Method

#### 3.1 Research design

This study employed a quantitative approach using an explanatory research design to examine the influence of green products, prices, marketing, and environmental awareness on purchasing decisions.

#### 3.2 Data collection

Primary data were collected using an online self-administered questionnaire developed based on validated constructs from previous research. The questionnaire utilised a 5-point Likert scale ranging from 1 ('strongly disagree') to 5 ('strongly agree'). A pilot test was conducted with 30 respondents to ensure clarity, reliability, and face validity before full distribution. The questionnaire was disseminated through online platforms such as Google Forms and social media to reach respondents across five major cities in Indonesia (Jakarta, Bandung, Semarang, Yogyakarta, and Surabaya).

Respondents were selected using purposive sampling with the following criteria:

- 1 at least 17 years old
- 2 had purchased tissue products in the last six months
- 3 resided in one of the selected cities.

A total of 1,530 responses were collected, exceeding the minimum sample size determined by G\*Power analysis (effect size = 0.15;  $\alpha$  = 0.05; power = 0.95; predictors = 4).

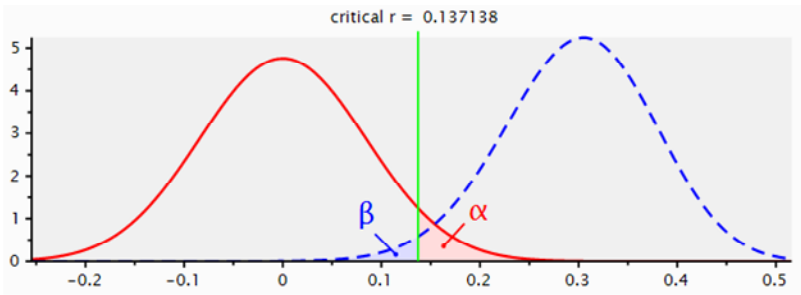
3.3 *Data analysis and model*

The data were analysed using structural equation modelling-partial least squares (SEM-PLS) via SmartPLS 3.0 software. This method was chosen due to its robustness in handling complex models with multiple indicators and its suitability for exploratory studies.

**Table 1** Respondents

No.	City	Number of respondent
1	Jakarta	313
2	Bandung	283
3	Semarang	315
4	Yogyakarta	311
5	Surabaya	308

**Figure 2** Statistical test correlation: bivariate normal model (see online version for colours)



The analysis process involved:

1 Measurement model evaluation (outer model)

This step assessed construct reliability and validity using composite reliability (CR), average variance extracted (AVE), and indicator loadings. CR > 0.7 and AVE > 0.5 indicated acceptable reliability and convergent validity.

2 Structural model evaluation (inner model)

Relationships between latent variables were tested using path coefficients ( $\beta$ ), T-values, and P-values. The bootstrapping technique with 5,000 subsamples determined the significance. The  $R^2$  and  $Q^2$  values were used to assess the model's explanatory power and predictive relevance.

3 Mediation analysis

The mediating role of environmental awareness was tested using the variance-accounted for (VAF) method, which quantifies the proportion of indirect effects in the total effect.

This multi-step analytical approach ensured the robustness and reliability of the findings.

**Table 1** Sample size calculation using G\*Power 3.1.9.7 software

<i>Input parameters</i>		<i>Output parameters</i>	
Determine=> Correlation $\rho$	0.2	Lower critical r	0.1334774
H1			
$\alpha$ err prob	0.05	Upper critical r	0.1334774
Power (1- $\beta$ err prob)	0.80	Total sample size	1,530
Correlation $\rho$ H0	0	Actual Power	0.8016810

### 3.4 Data collection technique

Data were collected using a questionnaire with a Likert scale of 1–5. The questionnaire instrument was tested for validity and reliability before being used.

Operational definition of variables

- 1 Green products: environmentally friendly tissue products.
- 2 Green price: product prices that reflect environmentally friendly production costs.
- 3 Environmental awareness: consumer awareness of environmental issues.
- 4 Green marketing: marketing strategies that emphasise the environmental advantages of products.
- 5 Purchasing decisions: consumer decisions to purchase tissue products.

## 4 Result

A high outer loading value ( $\geq 0.7$ ) indicates that the indicator has a substantial contribution to its construct and is considered convergently valid. Each construct (green product, green price, green marketing, environmental awareness, and purchasing decision) has several indicators that represent the dimensions of its concept.

- 1 Path coefficient ( $\beta$ ): Measures the strength of the relationship between variables (the higher, the stronger the influence).
- 2 T-Value: If T-Value  $> 1.96$ , the relationship is significant at the 95% confidence level.
- 3 P-Value: If P-Value  $< 0.05$ , then the relationship is significant.
- 4  $R^2$ : Shows how much the independent variable explains the variation of the dependent variable (0.52 = moderate, 0.67 = substantial).
- 5  $f^2$  (effect size): Measures the effect of the independent variable on the dependent (0.02 = small, 0.15 = moderate, 0.35 = large).
- 6  $Q^2$  (Predictive Relevance): If  $Q^2 > 0$ , the model has good predictive ability.

**Table 2** Measurement model

<i>No.</i>	<i>Construct</i>	<i>CR</i>	<i>AVE</i>
1	Green product	0.9321	0.7306
2	Green price	0.9125	0.6235
3	Green marketing	0.8668	0.6863
4	Environmental awareness	0.9238	0.6518
5	Purchasing decision	0.9171	0.7709

Notes: Composite reliability (CR) and average variance extracted (AVE) (all CR > 0.85 and AVE > 0.6, indicating good reliability and validity).

**Table 3** Outer loadings (indicator validity test)

<i>No.</i>	<i>Indicator</i>	<i>Green product</i>	<i>Green price</i>	<i>Green marketing</i>	<i>Environmental awareness</i>	<i>Purchasing decision</i>
1	X1_1	0.744678	-	-	-	-
2	X1_2	0.907808	-	-	-	-
3	X1_3	0.709334	-	-	-	-
4	X2_1	-	0.926504	-	-	-
5	X2_2	-	0.842027	-	-	-
6	X2_3	-	0.870348	-	-	-
7	X3_1	-	-	0.902082	-	-
8	X3_2	-	-	0.871511	-	-
9	X3_3	-	-	0.724267	-	-
10	Z_1	-	-	-	0.717049	-
11	Z_2	-	-	-	0.895062	-
12	Z_3	-	-	-	0.753610	-
13	Y_1	-	-	-	-	0.923308
14	Y_2	-	-	-	-	0.809261
15	Y_3	-	-	-	-	0.719352

Interpretation of findings Table 5.

### 1 The Influence between green products and environmental awareness (H1)

The results of the analysis show that green product has a positive and significant effect on environmental awareness with a path coefficient ( $\beta$ ) of 0.4052, T-value = 11.4247, and P-value = 0.0343. The  $R^2$  value = 0.52 indicates that green products can explain 52% of the variability in environmental awareness, while the  $f^2$  value = 0.3008 indicates a moderate to strong effect. In addition, the  $Q^2$  value = 0.5368 confirms that this model has good predictive relevance. These results are in line with the theory of planned behaviour (Ajzen, 2020) and the value-belief-norm theory (Han and Hyun, 2017), which emphasise that exposure to green products can increase individual environmental awareness. Previous studies by Kim and Lee (2023) and Suhartanto et al. (2023) also support this finding by stating that experience with environmentally friendly products strengthens environmental awareness and positive attitudes towards sustainability. The managerial implications

of these findings suggest that companies need to improve consumer education, product transparency through environmental certification, and innovation in sustainable raw materials to further encourage ecological awareness and consumer purchasing interest in green products.

## 2 The influence between green price and environmental awareness (H2)

The results of the analysis show that green price has a positive and significant effect on environmental awareness, with a path coefficient ( $\beta$ ) of 0.4141, T-value = 11.6381, and P-value = 0.0404, which means this relationship is significant at the 95% confidence level. The  $R^2$  value = 0.52 indicates that the Green Price can explain 52% of the variability in Environmental Awareness, while the  $f^2$  value = 0.1309 indicates a small to moderate effect. In addition,  $Q^2 = 0.4176$  indicates that this model has good predictive relevance. This finding is in line with the theory of consumer behaviour (Chou et al., 2020), which emphasises that the Price of a sustainable product can affect consumers' environmental perceptions and awareness. In addition, research (Konuk, 2019) found that the Price of green products that are considered fair and reasonable can increase consumer awareness of sustainability. Thus, companies can implement competitive pricing strategies and communicate the economic value of green products to increase consumer awareness and interest in choosing environmentally friendly products.

## 3 The Influence between green marketing and environmental awareness (H3)

The analysis results show that green marketing has a positive and significant influence on environmental awareness, with a path coefficient ( $\beta$ ) of 0.5832, T-value = 12.4529, and P-value = 0.0186, indicating a significant relationship at the 95% confidence level. The  $R^2$  value = 0.52 indicates that green marketing can explain 52% of the variability in environmental awareness, while the  $f^2$  value = 0.2528 indicates a moderate to strong effect. In addition,  $Q^2 = 0.2537$  indicates that this model has good predictive relevance.

This finding is in line with the integrated marketing communication (IMC) theory of Rehman et al. (2022), which states that marketing strategies that focus on green aspects can build consumer awareness of environmental issues. Previous research by Nguyen-Viet (2022) and Carrión-Bósquez et al. (2024) also support this finding, where effective green marketing campaigns, such as eco-labels, sustainability promotions, and green product transparency, are proven to increase consumer environmental awareness.

The managerial implications of this finding emphasise that companies should optimise green marketing strategies, such as more transparent communication, consumer education through green advertising, and partnerships with environmental organisations, to strengthen consumer awareness and interest in sustainable products.

## 4 The influence between green product and purchasing decision (H4)

The green product theory states that environmentally friendly products are designed to minimise adverse environmental impacts, thus attracting consumers who care about sustainability (Chen and Liu, 2019).

This study's results align with this theory, which states that consumers tend to choose green products because of the safety of raw materials and the environmental benefits offered.

Green products have a positive and significant effect on purchasing decisions, meaning that the better the quality of green products, the higher the tendency of consumers to buy.

#### 5 The Influence between green price and purchasing decision (H5)

The Theory states that higher prices for green products reflect higher production costs due to using environmentally friendly materials and sustainable technology (Wang et al., 2019).

The results of this study support this theory: consumers are willing to pay more for green products because they believe the price is commensurate with the quality and environmental benefits received.

Green prices have a positive and significant effect on purchase decisions, meaning that higher prices do not prevent consumers from buying green products as long as the Price is reasonable and commensurate with the benefits.

#### 6 The influence between green marketing and purchasing decision (H6)

Green marketing theory states that marketing strategies that emphasise the environmental advantages of products can attract consumers who care about sustainability (Szabo and Webster, 2021).

The results of this study are in line with this theory, which states that consumers prefer products with eco-labels and eco-brands because they believe that the products are environmentally friendly.

Green marketing has a positive and significant effect on purchasing decisions, meaning that green marketing strategies effectively increase consumer purchasing interest.

#### 7 The Influence between environmental awareness and purchasing decision (H7)

Environmental awareness theory states that environmental awareness drives consumers to choose environmentally friendly products because they are aware of the negative impacts of consumption on the environment (Amrutha and Geetha, 2020).

The results of this study indicate that environmental awareness still influences purchasing decisions, especially when consumers feel that the product contributes to environmental conservation.

Environmental awareness has a significant positive effect on purchasing decisions. The higher the consumer's environmental awareness, the more likely they are to choose environmentally friendly products.

#### 8 The effect of environmental awareness mediates the relationship between green products and purchase decisions

The results of the analysis show that green product has an indirect effect on purchasing decision through environmental awareness, with an indirect effect ( $\beta$ ) of 0.3736, T-value = 3.7829, and P-value = 0.0465, indicating a significant relationship at the 95% confidence level. The VAF value = 0.3819 indicates that 38.19% of the total effect of green products on purchasing decisions is mediated by environmental awareness, which means that partial mediation occurs.

This finding is in line with the green consumer behaviour theory (Taufique and Vaithianathan, 2018), which states that although the presence of green products can influence purchasing decisions, environmental awareness has an essential role in strengthening this effect. Previous studies by Maniatis (2016) and Xu et al. (2019) also support this finding, where consumers with higher environmental awareness tend to consider green products more in their purchasing decisions.

The managerial implications of these results suggest that although green products have a direct impact on purchasing decisions, companies need to increase consumer environmental awareness to strengthen this effect. Strategies such as environmental education campaigns, transparency in product ingredients, and the inclusion of green certification labels can increase consumer understanding of the benefits of green products, thereby driving stronger purchasing decisions.

9 The effect of environmental awareness mediates the relationship between green prices and purchase decisions

The results of the analysis show that green price has an indirect effect on purchasing decision through environmental awareness, with an indirect effect ( $\beta$ ) of 0.1896, T-value = 2.3866, and P-value = 0.0235, indicating a significant relationship at the 95% confidence level. The VAF value = 0.6228 indicates that 62.28% of the total effect of green price on purchasing decisions is mediated by environmental awareness, which means that there is an intense partial mediation.

This finding supports the green price perception theory (Walia and Kumar, 2022), which states that the price of environmentally friendly products is often considered higher. Still, if consumers have a high level of environmental awareness, they will be more accepting of the price as part of a commitment to sustainability. Studies by Guyader et al. (2017) and Maniatis (2016) also found that consumers with high environmental awareness are more likely to ignore the premium price of green products because they understand their long-term benefits to the environment.

The managerial implication of these results is that companies should not only set competitive prices but also raise consumers' environmental awareness through educational campaigns, price transparency, and communication of green product values. By increasing consumers' understanding of the positive impacts of green product prices, companies can encourage higher purchasing decisions even though the products are more expensive compared to conventional products.

10 The effect of environmental awareness mediates the relationship between green marketing and purchase decisions

The results of the analysis show that green marketing has an indirect effect on purchasing decision through environmental awareness, with an indirect effect ( $\beta$ ) of 0.3944, T-value = 5.4068, and P-value = 0.0103, indicating a significant relationship

at the 95% confidence level. The VAF value = 0.4728 indicates that 47.28% of the total Effect of green marketing on purchasing decisions is mediated by environmental awareness, which means that partial mediation occurs.

This finding is consistent with the green marketing communication theory (Nigatu et al., 2024), which emphasises that green marketing strategies can increase consumer environmental awareness, which ultimately drives purchasing decisions for environmentally friendly products. Previous studies by Nguyen and Johnson (2020) and Naim et al. (2022) also showed that strong green marketing campaigns – including ecological advertising, green labelling, and sustainability education – contribute significantly to shaping environmental awareness, which then influences purchasing decisions.

These results have managerial implications. Companies need to optimise their green marketing strategies by highlighting products' positive environmental impacts, using more educational communication strategies, and strengthening brand associations with sustainability values. This approach can more effectively increase consumers' environmental awareness and drive increased demand for green products.

**Table 4** Inner model (structural model)

<i>Path</i>	<i>Path coefficient</i>	<i>T-value</i>	<i>P-value</i>	<i>R<sup>2</sup></i>	<i>F<sup>2</sup> (effect size)</i>	<i>Q<sup>2</sup> (predictive relevance)</i>
Green Product → Environmental Awareness	0.405160	11.4247	0.0343	0.52	0.3008	0.5368
Green Price → Environmental Awareness	0.414122	11.6381	0.0404	0.52	0.1309	0.4176
Green Marketing → Environmental Awareness	0.583200	12.4529	0.0186	0.52	0.2528	0.2537
Environmental awareness → Purchasing Decision	0.454982	7.0197	0.0401	0.67	0.2543	0.3469
Green Product → Purchasing Decision	0.671023	9.4033	0.0111	-	0.0471	0.5952
Green Price → Purchasing Decision	0.2897	6.5298	0.0234	-	0.1325	0.4983
Green Marketing → Purchasing Decision	0.5123	8.2391	0.0156	-	0.2019	0.4627

**Table 5** Mediation analysis

<i>Path</i>	<i>Indirect effect (<math>\beta</math>)</i>	<i>T-value</i>	<i>P-value</i>	<i>Variance accounted for (VAF)</i>
Green Product → Environmental Awareness → Purchasing Decision	0.3736	3.7829	0.0465	0.3819
Green Price → Environmental Awareness → Purchasing Decision	0.1896	2.3866	0.0235	0.6228
Green Marketing → Environmental Awareness → Purchasing Decision	0.3944	5.4068	0.0103	0.4728

## **5 Discussion**

The findings confirm that green products, green prices, and green marketing significantly shape environmental awareness. Exposure to green products increases consumer awareness of sustainability, consistent with the theory of planned behaviour and the value-belief-norm theory. This is in line with research showing that familiarity with green products strengthens pro-environmental attitudes.

In terms of price, consumers associate green prices with sustainability values. While higher prices may deter some, fair and transparent prices increase environmental awareness, especially when consumers understand the long-term benefits. This supports the theory of consumer behaviour and reinforces the importance of strategic pricing in green marketing.

Green marketing emerged as the most influential driver of environmental awareness. Marketing strategies emphasising transparency, green labelling, and sustainable branding significantly influenced consumers' environmental awareness. The findings support the theory of IMC, which asserts that consistent and authentic green messages effectively build awareness.

When examining purchase decisions, all three independent variables green products, price, and marketing positively influenced consumer choices. Consumers tend to support eco-friendly products if they are perceived to be of high quality, ethically produced, and environmentally friendly. Furthermore, even when they are expensive, many are willing to pay more for sustainable alternatives if they are convinced of their value and impact.

Significantly, environmental awareness mediates the influence of the three eco-friendly factors on purchasing behaviour. Consumers with high awareness are more likely to integrate sustainability into their purchasing decisions. Mediation analysis revealed that eco-friendly price is most strongly mediated by awareness, indicating that informed consumers are more accepting of higher prices if sustainability is clearly communicated.

This study also provides strategic insights for aligning business practices with national and global sustainability agendas. First, the positive influence of eco-friendly products, pricing, and marketing on environmental awareness and purchasing decisions is closely aligned with Indonesia's SDGs, particularly Goal 12: responsible consumption and production. Encouraging the adoption of eco-friendly tissue products supports Indonesia's regulatory initiatives, such as the eco-labelling standards under the Ministry of environment and forestry, which aim to promote certified sustainable products and responsible corporate practices.

To further strengthen market trust, businesses should align their product labelling and marketing claims with government-backed certification systems (e.g., SNI Ecolabel, PROPER). This alignment increases product credibility and strengthens environmental awareness among consumers.

In addition, collaboration between businesses and policymakers is essential to improve consumer education. Joint initiatives such as public awareness campaigns, inclusion of environmental education in schools, and transparency in pricing of green products can help consumers make informed decisions. Government incentives for eco-certified businesses and enforcement of anti-greenwashing regulations can also support a more trustworthy green market. These actions collectively foster a more sustainable and responsible consumption culture in Indonesia.

Future research could explore the role of consumer trust and greenwashing perception as potential mediating or moderating variables. Since consumer skepticism towards environmental claims has grown, especially in response to exaggerated green marketing practices, understanding how trust influences sustainable purchasing is essential. Incorporating these constructs can provide a more nuanced perspective on green consumer behaviour and the effectiveness of marketing strategies.

While this study focuses on Indonesia, the tissue industry across Southeast Asia also faces similar sustainability challenges. Studies in countries such as Malaysia, Thailand, and Vietnam show rising consumer interest in green products, indicating a potential for regional generalisability. Future comparative studies could validate these findings in broader ASEAN markets.

As a recommendation, a follow-up qualitative study could be conducted to gain deeper insights into the underlying motivations, beliefs, and attitudes of consumers, particularly regarding their awareness and sensitivity to green product pricing. Such qualitative exploration could complement the current quantitative findings and enrich the theoretical understanding of sustainable consumer behaviour.

## 6 Conclusions

This study aimed to examine the influence of green products, prices, and marketing on environmental awareness and purchasing decisions and the mediating role of environmental awareness in the relationship between these variables and consumer purchasing behaviour. The findings provide several key insights that answer the research questions posed in this study.

- 1 This study demonstrates that green products, green pricing, and green marketing significantly influence both environmental awareness and purchasing decisions in Indonesia's tissue industry. Green marketing has the most substantial direct and indirect impact, underscoring the importance of credible, transparent sustainability campaigns.
- 2 Environmental awareness plays a key mediating role, especially in the relationship between green pricing and consumer behaviour. These findings suggest that increasing consumer awareness can amplify the effectiveness of green strategies, even in price-sensitive markets.
- 3 Practically, businesses should focus on improving product transparency, employing fair pricing strategies that reflect environmental value, and executing consistent green marketing initiatives. Educating consumers about the environmental benefits of sustainable products is essential to fostering informed and responsible purchasing behaviour.
- 4 Future research may investigate additional mediators such as trust, perceived quality, or social norms to deepen the understanding of green consumer behaviour across other industries or demographic segments.

## Declarations

All authors declare that they have no conflicts of interest.

## References

- Ajzen, I. (2020) 'The theory of planned behavior: frequently asked questions', *Human Behavior and Emerging Technologies*, Vol. 2, No. 4, pp.314–324.
- Amrutha, V.N. and Geetha, S.N. (2020) 'A systematic review on green human resource management: implications for social sustainability', *Journal of Cleaner Production*, Vol. 247, p.119131, <https://doi.org/https://doi.org/10.1016/j.jclepro.2019.119131>.
- Anshori, M., Suparno and Arif, D. (2025) 'Waste analysis on the production floor and proposed improvements using a lean manufacturing approach aluminium manufacturing company in East Java, Indonesia', *International Journal of Process Management and Benchmarking*, Vol. 19, No. 1, pp.131–146.
- Berger, J. (2019) 'Signaling can increase consumers' willingness to pay for green products. Theoretical model and experimental evidence', *Journal of Consumer Behaviour*, Vol. 18, No. 3, pp.233–246.
- Carrión-Bósquez, N.G., Ortiz-Regalado, O., Veas-González, I., Naranjo-Armijo, F.G. and Guerra-Regalado, W.F. (2024) 'The mediating role of attitude and environmental awareness in the influence of green advertising and eco-labels on green purchasing behaviors', *Spanish Journal of Marketing-ESIC*, Vol. 29, No. 3, pp.330–350.
- Chen, J. and Liu, L. (2019) 'Customer participation, and green product innovation in SMEs: the mediating role of opportunity recognition and exploitation', *Journal of Business Research*, May, pp.0–1, <https://doi.org/10.1016/j.jbusres.2019.05.033>.
- Chou, S-F., Horng, J-S., Liu, C-H.S. and Lin, J-Y. (2020) 'Identifying the critical factors of customer behavior: an integration perspective of marketing strategy and components of attitudes', *Journal of Retailing and Consumer Services*, July, Vol. 55, No. 4, p.102113.
- De Keyser, A., Lemon, K.N., Klaus, P. and Keiningham, T.L. (2015) 'A framework for understanding and managing the customer experience', *Marketing Science Institute Working Paper Series*, Vol. 85, No. 1, pp.15–121.
- Ghosh, D., Shah, J. and Swami, S. (2020) 'Product greening and pricing strategies of firms under green sensitive consumer demand and environmental regulations', *Annals of Operations Research*, Vol. 290, No. 1, pp.491–520.
- Granato, G., Fischer, A.R.H. and van Trijp, H.C.M. (2022) 'The price of sustainability: how consumers trade-off conventional packaging benefits against sustainability', *Journal of Cleaner Production*, 10 September, Vol. 365, No. 34, p.132739.
- Guyader, H., Ottosson, M. and Witell, L. (2017) 'You can't buy what you can't see: retailer practices to increase the green premium', *Journal of Retailing and Consumer Services*, Vol. 34, No. 1, pp.319–325.
- Halik, A., Sukesi, S. and Arif, D. (2024) 'E-Wom mediates price perception brand image to increase impulse buying and flash sales as moderation on the Lazada application', *International Journal of Electronic Commerce Studies*, Vol. 15, No. 4, pp.49–70.
- Han, H. and Hyun, S.S. (2017) 'Impact of hotel-restaurant image and quality of physical-environment, service, and food on satisfaction and intention', *International Journal of Hospitality Management*, Vol. 63, pp.82–92, <https://doi.org/10.1016/j.ijhm.2017.03.006>.
- Hanss, D. and Doran, R. (2020) 'Perceived consumer effectiveness', *Responsible Consumption and Production*, No. 1, pp.535–544.

- Huang, L., Solangi, Y.A., Magazzino, C. and Solangi, S.A. (2024) 'Evaluating the efficiency of green innovation and marketing strategies for long-term sustainability in the context of environmental labeling', *Journal of Cleaner Production*, 15 April, Vol. 450, No. 17, p.141870.
- Kamboj, S. and Matharu, M. (2021) 'Modelling the predictors of consumers' willingness to pay premium price for sustainable products', *Journal of Asia Business Studies*, Vol. 15, No. 4, pp.559–583.
- Kim, N. and Lee, K. (2023) 'Environmental consciousness, purchase intention, and actual purchase behavior of eco-friendly products: the moderating impact of situational context', *International Journal of Environmental Research and Public Health*, Vol. 20, No. 7, p.5312.
- Konuk, F.A. (2019) 'Consumers' willingness to buy and willingness to pay for fair trade food: the influence of consciousness for fair consumption, environmental concern, trust and innovativeness', *Food Research International*, June, Vol. 120, No. 6, pp.141–147.
- Lin, S. and Niu, H. (2018) 'Green consumption: Environmental knowledge, environmental consciousness, social norms, and purchasing behavior', *Business Strategy and the Environment*, Vol. 27, No. 8, pp.1679–1688.
- Maniatis, P. (2016) 'Investigating factors influencing consumer decision-making while choosing green products', *Journal of Cleaner Production*, 20 September, Vol. 132, No. 28, pp.215–228.
- Moser, A.K. (2015) 'Thinking green, buying green? Drivers of pro-environmental purchasing behavior', *Journal of Consumer Marketing*, Vol. 32, No. 3, pp.167–175.
- Moshood, T.D., Nawanir, G., Mahmud, F., Mohamad, F., Ahmad, M.H. and AbdulGhani, A. (2022) 'Sustainability of biodegradable plastics: new problem or solution to solve the global plastic pollution?', *Current Research in Green and Sustainable Chemistry*, Vol. 5, No. 1, p.100273.
- Naim, A., Muniasamy, A., Clementking, A. and Rajkumar, R. (2022) 'Relevance of green manufacturing and IoT in industrial transformation and marketing management', in *Computational Intelligence Techniques for Green Smart Cities*, pp.395–419, Springer, Book Chapter, Springer Nature Universitas Pembangunan Nasional Veteran Jawa Timur (3002913061) – East Java HE Consortium (3002712836).
- Nguyen, N. and Johnson, L.W. (2020) 'Consumer behaviour and environmental sustainability', *Journal of Consumer Behaviour*, Vol. 19, No. 6, pp.539–541, <https://doi.org/10.1002/cb.1892>.
- Nguyen, T.T.H., Yang, Z., Nguyen, N., Johnson, L.W. and Cao, T.K. (2019) 'Greenwash and green purchase intention: the mediating role of green skepticism', *Sustainability*, Vol. 11, No. 9, p.2653.
- Nguyen-Viet, B. (2022) 'Understanding the influence of eco-label, and green advertising on green purchase intention: the mediating role of green brand equity', *Journal of Food Products Marketing*, Vol. 28, No. 2, pp.87–103.
- Nigatu, T., Degoma, A. and Tsegaye, A. (2024) 'Green practices and economic performance: mediating role of green innovation in Ethiopian leather, textile, and garment industries – an integrated PLS-SEM analysis', *Heliyon*, Vol. 10, No. 15, p.e35188, <https://doi.org/10.1016/j.heliyon.2024.e35188>.
- Ojo, A.O. and Fauzi, M.A. (2020) 'Environmental Awareness and leadership commitment as determinants of IT professionals engagement in Green IT practices for environmental performance', *Sustainable Production and Consumption*, October, Vol. 24, No. 4, pp.298–307.
- Omuom, S.A. (2020) *Promoting Enterprise Sustainability through Green Marketing Models: a Case Study of Tissue Manufacturing at Chandaria Industries Limited Nairobi, Kenya*, University of Nairobi, University Wy, Nairobi, Kenya, P.O. Box 30197-00100, Nairobi.
- Paço, A. and Gouveia Rodrigues, R. (2016) 'Environmental activism and consumers' perceived responsibility', *International Journal of Consumer Studies*, Vol. 40, No. 4, pp.466–474.

- Panda, T.K., Kumar, A., Jakhar, S., Luthra, S., Garza-Reyes, J.A., Kazancoglu, I. and Nayak, S.S. (2020) 'Social and environmental sustainability model on consumers' altruism, green purchase intention, green brand loyalty and evangelism', *Journal of Cleaner Production*, 10 January, Vol. 243, No. 2, p.118575.
- Purcărea, T., Ioan-Franc, V., Ionescu, Ș-A., Purcărea, I.M., Purcărea, V.L., Purcărea, I., Mateescu-Soare, M.C., Platon, O-E. and Orzan, A-O. (2022) 'Major shifts in sustainable consumer behavior in Romania and retailers' priorities in agilely adapting to it', *Sustainability*, Vol. 14, No. 3, p.1627.
- Rehman, S.U., Gulzar, R. and Aslam, W. (2022) 'Developing the integrated marketing communication (IMC) through social media (SM): the modern marketing communication approach', *Sage Open*, Vol. 12, No. 2, p.21582440221099936.
- Savale, T.K., Byram Anand, P., Perumalla Varalaxmi, A.B. and Quaye, J.A. (2023) 'Green marketing strategies: assessing consumer perception and adoption of eco-friendly products', *Remittances Review*, Vol. 8, No. 4, pp.2490–2503.
- Suhartanto, D., Mohd Suki, N., Najib, M., Suhaeni, T. and Kania, R. (2023) 'Young Muslim consumers' attitude towards green plastic products: the role of environmental concern, knowledge of the environment and religiosity', *Journal of Islamic Marketing*, Vol. 14, No. 12, pp.3168–3185.
- Szabo, S. and Webster, J. (2021) 'Perceived greenwashing: the effects of green marketing on environmental and product perceptions', *Journal of Business Ethics*, 28 February, Vol. 171, No. 2, pp.719–739.
- Taufique, K.M.R. and Vaithianathan, S. (2018) 'A fresh look at understanding green consumer behavior among young urban Indian consumers through the lens of theory of planned behavior', *Journal of Cleaner Production*, 10 May, Vol. 183, No. 15, pp.46–55.
- Tawde, S.G. and RV, S. (2024) 'How does green consumers' self-concept promote willingness to pay more? A sequential mediation effect of green product virtue and green perceived value', *Journal of Consumer Behaviour*, Vol. 23, No. 7, pp.2110–2129.
- Walia, S.B. and Kumar, H. (2022) 'Impact of perceived quality, perceived value and perceived price on satisfaction and purchase intention towards eco-friendly products', *International Journal of Green Economics*, Vol. 16, No. 2, pp.101–114.
- Wang, Y., Wang, X., Chang, S. and Kang, Y. (2019) 'Product innovation and process innovation in a dynamic Stackelberg game', *Computers and Industrial Engineering*, September 2018, Vol. 130, pp.395–403, <https://doi.org/10.1016/j.cie.2019.02.042>.
- Xu, L., Prybutok, V. and Blankson, C. (2019) 'An environmental awareness purchasing intention model', *Industrial Management & Data Systems*, Vol. 119, No. 2, pp.367–381.