

FACTORS INFLUENCING GREEN HOME APPLIANCE PURCHASE INTENTION AMONG CONSUMERS IN RIAU ISLANDS

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Abstract

The main factors influencing consumers' inclinations to buy energy-efficient household equipment in Indonesia's Riau Archipelago are examined in this study. The study assesses the contributions of consumer attitudes, subjective norms, environmental awareness, eco-labeling, governmental laws, and willingness to pay a premium by using the Theory of Planned Behavior (TPB) framework with expanded variables. The results of a quantitative survey with 417 participants and multiple regression analysis show that government regulations, consumer attitudes, and willingness to pay all have a significant and beneficial impact on consumers' intentions to make green purchases. On the other hand, eco-labeling, environmental knowledge, and subjective norms have no discernible impact. These results highlight the role that human attitudes and public policies play in influencing sustainable purchasing patterns, offering useful information for companies and legislators looking to advance green technologies.

Keywords: Energy-efficient Appliances, Theory Planned Behavior, Purchase Intention, Consumer Behavior, Sustainable Consumption

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Introduction

As a developing country, Indonesia experiences consistently increasing economic growth. However, 8.2 million households in Indonesia still rely on firewood as a source of energy for cooking (Tempo, 2024). Bappenas' Deputy for Population and Labor revealed that in 2018, almost 30 percent of villages across Indonesia, or more than 25,000 villages, still used firewood. These villages do not have access to clean energy, for example, to switch to electricity, gas, or biogas for these villages. The Minister of Energy and Mineral Resources of the Republic of Indonesia reported that there are still 6,700 unelectrified villages out of 340 sub-districts (CNBC, 2025). It is also reported that around 1.3 million households have not yet experienced the full benefits of electricity (IDN Times, 2024).

The above phenomenon shows that economic growth alone is not enough. It is also important to pay attention to economic progress that is balanced with a sufficient energy supply. In addition, better and wider energy distribution is still needed to overcome the problem of access to electrical energy. This makes the Indonesian government continue to strive to increase the ratio of electrified villages to reach 99.92% (Tempo, 2025).

The Indonesian government has taken various measures to address the electricity shortage, including energy source diversification, grid expansion, and efficiency improvement (Ministry of Energy and Mineral Resources, 2021).

Efforts to increase the efficiency of electrical energy use have been made by the government through campaigns to use more efficient technologies, such as LED lights and energy-efficient electronic equipment. Efforts to increase public awareness about the importance of energy saving have also been made by the government through campaigns and educational programs.

According to Law No. 30/2007 on Energy, energy-saving behavior includes actions to reduce expenditures due to the use of energy-consuming devices. The Ministry of Energy and Mineral Resources (2016) stated that saving energy by 10% is easier and cheaper than building power plants with the same capacity, which costs around IDR 450 trillion. Energy savings are expected to expand energy access, especially for the poor and vulnerable. Energy efficiency is also believed to be a solution to reduce environmental damage and the impact of climate (G. Li et al., 2021). In this case, households are an important sector in realizing energy efficiency through the use of energy-efficient products.

At present, the development of energy-saving products, also known as green products, has become a broad field for social progress and commercial development, involving both consumers and enterprises (Jabeen et al., 2021).

In order to create a green economy, businesses have started to work toward the combined development of environmental preservation and economic growth. To satisfy customer demands, businesses have created a range of eco-friendly products (Osburg et al., 2020). Consumer preferences for energy-efficient products are changing at an accelerating rate, which motivates businesses to address these issues.

The market for green products is still not very developed, despite the fact that consumers are demanding more green products and businesses are eager to create green marketplaces. According to a prior study, over 30% of customers tried to incorporate their environmental concerns into their shopping decisions (Varah et al., 2020).

In Varah's research et. al. (2020), the theory of consumer behavior is the main theory in marketing methods. *Theory Planned Behavior* (Ajzen, 1991) is one of the most influential theories in consumer decision-making. Therefore, this research framework adopts TPB with the expansion of several variables.

TPB, derived from the *Theory of Reasoned Action* (TRA) (Hill, 1977) It is the most widely used theory to scientifically examine the decision-making process and *behavioral intention* (Ajzen, 1991). TPB explains how non-volitional variables, social context, and personal determinants affect a person's intention (Han, 2020). Three factors—attitude, subjective norm, and perceived behavior control—are included in the TPB framework. The "behavior intention" is the result of these three factors. Furthermore, real behavior will develop from the desire to

behave.

The term "Green Purchase Intention" (GPI) describes a consumer's propensity to buy environmentally friendly products in the future. According to Sheng, GPI is a prelude to behavior and denotes a deliberate course of action that helps people reach particular objectives. Given that intention is the first step to making a purchase, many researchers have identified that attitude is one of the main factors that influence the intention to buy organic products (Palomino Rivera & Barcellos-Paula, 2024). The importance of understanding the individual decision-making process has led to a series of studies on purchase intention in consumer behavior (Teoh et al., 2022).

Ajzen (1991) states that several preliminary factors of influence lead to purchase intentions. These elements include perceived behavioral control (beliefs about one's own control over particular behaviors), patterns of behavior (beliefs about the results associated with particular behaviors), and subjective norms (beliefs about other people's opinions about what is right or wrong in society). Therefore, purchase intentions depend on consumer beliefs, which are the basis of understanding consumer attitudes in the field of behavior (Hameed et al., 2021). These beliefs are also the result of an individual's evaluation of previous experiences (Majeed et al., 2022). Thus, attitudes and experiences can influence a person's perception of product features and may influence their purchase intention, depending on the situation and moment of consumption (Zheng et al., 2024).

The term "green products" has become more popular in recent years and reflects society's increasing attention to the effects of increased consumption on the physical environment (Kamalanon et al., 2022). Consumers are more aware of their behavior, it is beliefs greatly influence the choice of green products (Chang, 2015). Green products are currently considered one of the fastest-growing business trends (Afifah & Kuswati, 2023). To compete with the changes in consumer behavior, green manufacturers need to be more creative and active. Now, both manufacturers and buyers choose products that follow environmental standards. However, consumer behavior towards green products is known to be complex, as many factors can influence the decision-making process (Mohd Suki, 2016). The method offered by the Theory of Planned Behavior (TPB) is to try to understand the role of each of these components. Responses, subjective norms (SN), perceived behavioral control (PBC), and attitudes are the three variables that can best predict a person's behavior. These three variables influence a person's intention to behave. Many studies have found that there is a positive correlation between a person's attitude and their willingness to act when purchasing environmentally friendly products (Jabeen et al., 2021; Khoiriyah et al., n.d.; Y. Zhang et al., 2020).

Consumers' attitudes towards green hotels influence their behavior. They will probably choose environmentally friendly goods. Additional studies show a strong positive correlation between attitude and behavioral intention when purchasing organic food (Liang & Lim, 2021; Palomino Rivera & Barcellos-Paula, 2024; Tandon et al., 2020). Environmental protection has encouraged consumers to support green consumption. This has been shown by many studies. However, there is a significant difference between the actual purchase behavior and the green purchase intention of consumers. This is referred to as "green purchase inconsistency" or "green behavior gap". Therefore, modern businesses must adopt a more "green" approach and adapt to the competitive demands of today's market (Palomino Rivera & Barcellos-Paula, 2024).

Furthermore, the academic literature on green behavior supports the assumption that these norms might play a very major role because of the degree of social influence they have on behavior, as indicated by Palomino Rivera & Barcellos-Paula's research in 2024. Young people who take environmental action are also more likely to take into account the expectations and viewpoints of those who are significant to them, including friends, family, and coworkers, according to studies (Lago et al., 2020; Varah et al., 2021). Research by Wang et al. indicates that. Green purchases are increased by subjective norms. Furthermore, those who are driven to buy environmentally friendly products do so because they have heard good things about them, which implies that the proximity of environmentally conscious consumers affects their propensity to buy.

The literature supporting Subjective Norms is clear, and recent research has shown that millennials have green purchase intentions, but other studies have questioned the role of norms in green purchase intentions. The knowledge a person has about their environment is called environmental knowledge (Aulia *et al.*, 2024; Jabeen *et al.*, 2021). Effective handling of environmental issues means understanding environmental issues and addressing issues when acting as a consumer. Environmental knowledge includes all data and information about a person's perception of the environment and how this impacts the behavior of others regarding their environmental knowledge. Their enthusiasm for environmental sustainability is greatly influenced by consumers who uphold the environmental knowledge principle. Those who are more aware of environmental issues will be more inclined to purchase eco-friendly products.

According to Putri & Hayu's research, environmental knowledge is the amount of knowledge a person has about their environment. Effective handling of environmental issues means understanding environmental issues and overcoming problems as consumers (Moslehpour *et al.*, 2023). Environmental knowledge includes all data and information about a person's perception of the environment and how this impacts the behavior of others regarding their environmental knowledge. Consumers who believe in environmental knowledge have a very important role in supporting environmental sustainability. When people know about they will be more interested in buying environmentally friendly goods. According to (H. T. Nguyen & Le, 2020) Eco-labels are essential for environmentally conscious shoppers to make purchases (H. V. Nguyen *et al.*, 2025; X. Zhang & Dong, 2020). Empirical research has shown that consumers' perception of eco-labels is influenced by their concern for the environment, which encourages them to purchase eco-friendly goods (Wang *et al.*, 2022). The addition of additional descriptive information to ecolabels has also been shown to enhance consumers' cognitive processes and purchase intentions (Chen *et al.*, 2022). In addition, trust in eco-labels and ease of purchase are two factors that can influence the intention to purchase eco-products and purchase actualization (Teixeira *et al.*, 2023). In summary, eco-labeling is an important information mechanism that can influence consumer choices about what is eco-friendly (Sadiq *et al.*, 2021). This shows how important it is to use a strong eco-labeling strategy to support sustainable consumer practices.

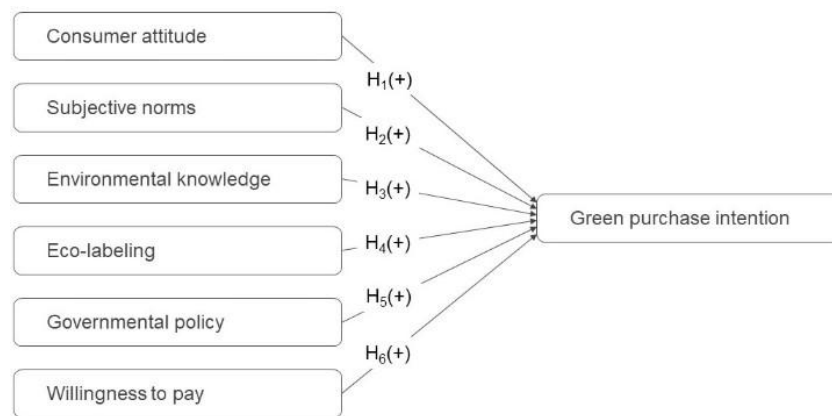
Government green initiatives aim to prevent or reduce harm to society through word-of-mouth influence, involvement in contributing to government green initiatives, and interest in the country's development efforts (Al-Swidi & Saleh, 2021). point out that there is an extensive body of literature that focuses on business operations in relation to the implementation of green initiatives. In the literature, it is mentioned that when companies change their operational action plans, they initiate green efforts. This will encourage product innovation and design as pointed out by including the redesign of manufacturing procedures, and production technology innovation according to (Rahayu *et al.*, 2023). It will also encourage green government procurement as a key environmental strategy (Legault 2000) in developed countries (Al-Swidi & Saleh, 2021).

Research has revealed that today, countries such as Denmark and Sweden can proudly say that more than 40% of their government procurement is "green." (Rahayu *et al.*, 2023). Several other European countries, including Norway, are now bound by legal agreements that provide the basis for estimating the sustainability of commodities as a clear criterion for making commodity purchasing decisions. According to (Mei *et al.*, 2012) Sustainability means less waste, fewer waste by-products, less energy, more material usability, fewer workplace health risks, and more general workplace safety. In such situations, the implementation of green policies usually requires the use of additional business approaches they increase their attention to environmental and social sustainability (Waris & Hameed, 2020b). In addition, government regulations may encourage businesses to incorporate sustainability into critical management decision-making processes.

Given that energy-efficient appliances often cost more than standard household appliances, consumers are often not motivated to use them because even though the use of energy-efficient appliances can help the environment and save on future electricity bills.

Furthermore, the premium increases with the energy efficiency of these products. Therefore, a research model was developed to improve our understanding of the components that influence the WTP price premium of energy-efficient appliances (X. Zhang & Dong, 2020).

This model predicts the WTP price premium for energy-efficient appliances based on attitudes toward buying such products. Attitudes can be affected by the perspectives of goods, customers, regulations, and publications. At the product level, according to the theory of value perceived by consumers, quality, price, emotional, social, and environmental value are some of the factors that consumers ascribe value to energy-efficient appliances. Consumers' choice to purchase these appliances is influenced by these factors. This study focuses on the influence of environmental awareness and personal norms on attitudes at the consumer, regulatory, and publication levels, and the perceived effectiveness of institutional mechanisms of energy labeling and media publications on attitudes at the regulatory and publication levels.



The hypotheses formulated in this study are as follows:

- H1: Consumer attitudes have a positive effect on green purchasing intentions.
- H2: Subjective norms have a positive effect on green purchasing intentions.
- H3: Environmental knowledge has a positive effect on green purchasing intentions.
- H4: Eco-labeling has a positive effect on green purchase intentions.
- H5: Government policies have a positive effect on green purchasing intentions.
- H6: Willingness to pay has a positive effect on green purchase intentions.

Methodology

Quantitative research measures variables that are used to prove theories. Then, the measurement of these variables is analyzed using statistics, and data is obtained in the form of numbers. The result is data that can be described in various ways, such as tables and graphs. The purpose of this quantitative approach is to prove and develop theories and hypotheses related to something that happens or certain objects. The population of this study used (Sekaran, Umar & Bougie, 2016) guidelines by distributing closed-ended questionnaires to survey a random selection of at least 300 participants. There were 417 sample participants used in this study. The data collection method carried out is to collect initial data. Data collection methods, such as questionnaires, which are distributed to respondents via Google Form and offer a series of questions to answer, are used. This questionnaire provides accurate and reliable information for calculating research data. Research analysis method is conducted with multiple regression analysis, and hypothesis testing is done using the SPSS program.

Result and Discussion

Multiple Regression Analysis

Based on the output analysis using the SPSS application program, the regression equation results are obtained:

$$Y = 5.113 + 0.589 X_1 + 0.051 X_2 + (-) 0.026 X_3 + 0.095 X_4 + 0.137 X_5 + 0.122 X_6$$

Where:

Y: Green Purchase Intention

X1: Consumer Attitude

X2: Subjective Norms

X3: Environmental Knowledge

X4 : Eco-labeling

X5: Governmental Policy

X6:Willingnessto pay

Based on the results of multiple regression analysis, $Y = 5.113 + 0.589 X_1 + 0.051 X_2 + (-) 0.026 X_3 + 0.095 X_4 + 0.137 X_5 + 0.122 X_6$, which shows that the Consumer Attitude variable has a greater influence on Green Purchase Intention than other variables. The variable that has no influence, shown by the negative value, is the Environmental Knowledge variable. The partial effect of the independent variable on the dependent variable is carried out through the t-test (Ghozali, 2021). How do *Consumer Attitude*, *Subjective Norms*, *Environmental Knowledge*, *Eco-labeling*, *Governmental Policy*, and *Willingness to pay* affect Green Purchase Intention in Riau Islands Province? The t-test results can be seen in Table 1 below.

Table 1: Results of the t-test

Model	Unstandardized		Standardize			
	B	Std. Error	Beta	T	Sig.	Description
(Constant)	5.113	.624		8.199	.000	Significant
Consumer Attitude	.589	.063	.472	9.366	.000	Significant
Subjective Norm	.051	.038	.069	1.352	.177	Not Significant
Environmental Knowledge	-.026	.039	-.033	-.672	.502	Not Significant
Eco-labeling	.095	.059	.084	1.616	.107	Not Significant
Governmental Policy	.137	.055	.125	2.506	.013	Significant
Willingness to Pay Premium	.122	.042	.138	2.887	.004	Significant

Source: Data processed, 2025

The t-test results indicate that the Consumer Attitude variable has a Sig value of Sig <0.05. This demonstrates that in the Riau Islands, consumer attitude positively affects the intention to make green purchases. The Sig value on the Subjective Norm variable is 0.177, as indicated by the t-test results table, where the Sig value is more than 0.05. This demonstrates that the intention to make green purchases in the Riau Islands is not significantly impacted by subjective standards. The Environmental Knowledge variable has a Sig value of 0.502, which is greater than 0.05, per the t-test results table. This demonstrates that in the Riau Islands, green purchase intention is not significantly impacted by environmental understanding.

The t-test results table indicates that the Eco-labeling variable has a Sig value of 0.107, which is greater than 0.05. This demonstrates that in the Riau Islands, ecological labeling has no discernible impact on the intention to make green purchases. The Government Policy variable has a Sig value of 0.013, as indicated by the t-test results table, which shows a Sig value of 0.05.

This shows that government policies are very helpful for *Green Purchase Intention* in the Riau Islands. Willingness to Pay Premium has a strong impact on Green Purchase Intention in the Riau Islands, as indicated by the t-test results table, where the Sig value is less than 0.05, and the Sig value on the Willingness to Pay Premium variable is 0.004. The F test, also known as the simultaneous test, is used to ascertain if each of the independent variables in the model jointly affects the dependent variable. According to (Ghozali & Latan, 2020), If the significant probability value is <5%, the independent variables will have a significant effect together on the dependent variable.

The results of the F test can be seen in Table 2 below.

Table 2 F Test Results

Variables Research	F	Sig.	Description
<i>Green Purchase Intention</i>	86,646	0,000	Simultaneous Significant

Source: Data processed, 2025

The independent variable has a simultaneous effect on the dependent variable, as indicated by the Sig value < 0.05, or 0.000, in Table 2 F Test above. This indicates that the factors of Governmental Policy, Environmental Knowledge, Eco-labeling, Subjective Norm, Consumer Attitude, and Willingness to Pay Premium all have an impact on the variable of Green Electronic Appliance Purchase Intention at the same time. This study uses the coefficient of determination (R) to calculate the extent to which the change in the dependent variable can be explained by the percentage measured between influence of all independent variables on the dependent variable. The value of R ranges between 0 and 1, which means that the ability of the dependent variable (dependent variable) is very limited, and if the value is close to one, then the independent variable (Ghozali & Latan, 2019).

Table 3 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.748 ^a	.559	.553	1.14568

a. Predictors: (Constant), WPP, CA, GP, EK, SN, ECL

b. Dependent Variable: GPI Source:

Data processed, 2025

Table 3's findings indicate that the variables of Consumer Attitude, Subjective Norm, Environmental Knowledge, Eco-labeling, Governmental Policy, and Willingness to Pay Premium have a 55.3% influence on the Green Purchase Intention variable, with other factors not covered by this research model accounting for the remaining 44.7%.

The Effect of Consumer Attitude on Green Purchase Intention in Riau Islands. "Behavioral beliefs and attitudes" refer to how much one likes or dislikes a behavior. In other words, attitudes are a way of saying whether you like or dislike something. A person's attitude and behavior are interrelated, and a positive attitude will follow a positive behavior as well. Consumers who have a positive attitude towards the environment are more likely to buy green products in the market, according to (Issock Issock et al., 2020). In addition (Nekmahmud et al., 2022) research found that customers who believe that a product's impact on the environment is low are more likely to buy the product. Consumer attitudes towards environmentally friendly products are positively correlated (Waris & Ahmed, 2020).

The Effect of Subjective Norm on Green Electronic Appliance Purchase Intention in Riau

Islands

Subjective norms are the pressures or expectations that people around us, such as friends, family, or coworkers, put on us about how we should have or act. For example, research conducted by (Walia *et al.*, 2020) found that subjective norms have a significant influence on the desire to buy green food and play an important role in shaping consumer behavior to continue buying green food (Luo *et al.*, 2022). When consumers feel that their "significant others" agree with green purchasing behavior, they tend to follow it (Lee, 2017; Sütterlin *et al.*, 2011).

The Effect of Environmental Knowledge on Green Electronic Appliance Purchase Intention in Riau Islands

Knowledge acquisition is essential for changing human behavior towards adopting ecologically responsible practices (Mohd Suki, 2016). Environmental knowledge is a key source that drives people's environmental awareness, impact, and responsibility, leading to sustainable development (Witek & Kuźniar, 2021). In addition, this knowledge is critical in every phase of the green decision-making process and can predict green purchase intention (Mei *et al.*, 2012). Consumers who are aware of green products, aware of the consequences of their use, and aware of environmental laws are more likely to consider the environmental benefits of a product before purchasing it. In addition, knowledge about the environment affects how a person sees their living environment (Yu *et al.*, 2024). This knowledge also affects how a person sees environmental issues, which in turn affects the desire to buy something (Ogiemwonyi *et al.*, 2020).

The Effect of Eco-labeling on Green Electronic Appliance Purchase Intention in Riau Islands

(Qi & Ploeger, 2021) conducted a study on the effect of the "Dolphin-Safe" ecological label on four canned tuna brands; it was found that consumers' canned tuna brand choices were positively affected by the presence of the "dolphin-safe" ecological label, and that consumers were positively affected by the presence of the "dolphin-safe" ecological label on their tuna brand preferences. The research findings show that energy labels influence consumers' decisions to purchase washing machines. Interestingly, the tendency is to pay more in costs than the cost savings that can be anticipated over the lifetime of the product. Eco-labels are essential for environmentally conscious shoppers to make purchases (Waris & Hameed, 2020a; Y. Zhang *et al.*, 2020). Empirical research has shown that consumers' perception of eco-labels is influenced by their concern for the environment, which encourages them to purchase eco-friendly goods (Wang *et al.*, 2022). The addition of additional descriptive information to eco-labels has also been shown to enhance consumers' cognitive processes and purchase intention (Chen *et al.*, 2022). In addition, trust in eco-labels and ease of purchase are two factors that can influence intention to purchase eco-products and purchase actualization (Ruslim *et al.*, 2023). This shows how important it is to use a strong eco-labeling strategy to support sustainable consumer practices.

The Effect of Governmental Policy on Green Electronic Appliance Purchase Intention in Riau Islands

Government organizations are responsible for preventing environmental problems and the adverse circumstances they cause. Governments implement various policies to accelerate sustainable development to protect the environment. Consumers are always influenced by policies like these to purchase environmentally friendly goods. For example, an empirical study conducted by (Zhuang *et al.*, 2021) looked at consumer psychological mechanisms, government behavior, and green purchase intentions. The study revealed that consumer innovation and cognitive-behavioral impacts, as well as government-led environmental initiatives, have a positive impact on the health of the body (Tenggono *et al.*, 2024). This study looks at the psychological mechanisms of consumers, government behavior, and green purchase intentions. Therefore, state policies are essential to influence the desire to purchase green goods. Environment by directing environmental protection efforts and encouraging environmentally friendly consumption modalities (Purwianti, 2022).

The Effect of Willingness to Pay Premium on Green Electronic Appliance Purchase Intention in Riau Islands

Willingness to pay is defined as the highest amount that a customer can give in exchange for a good or service that they perceive to be of equal value (Putra, 2021). Studies consistently show

that people who prioritize environmental sustainability tend to pay more for environmentally friendly goods or services (Ansu-Mensah, 2021; Y. Li *et al.*, 2021; Nekmahmud & Fekete-Farkas, 2020). This is even though green offerings are usually associated with higher costs (Ahmed *et al.*, 2023), environmentally conscious customers show lower sensitivity to price (Rahayu *et al.*, n.d.; Walia *et al.*, 2020; Y. Zhang *et al.*, 2020), and they tend to continue to purchase such goods or services (Putra *et al.*, 2024).

Conclusion

The objective of this study is to examine the impact of Consumer Attitude, Subjective Norms, Environmental Knowledge, Eco-labeling, Government Policy, and Willingness to Pay Premium on Green Purchase Intention in the Province of Riau Islands. The results of regression analysis show that the research model has a significant impact on Green Purchase Intention at the same time. The variables Consumer Attitude, Government Policy, and Willingness to Pay Premium have both a positive and significant impact on Green Purchase Intention. The research suggestions are as follows:

1. For Business Actors and Marketers: To influence consumer views and purchase interest, it is advised to expand marketing initiatives that stress the value of having a favorable attitude toward environmentally friendly products and their additional value.
2. For Local Government: The government needs to continue to strengthen policies and regulations that support the consumption of environmentally friendly products and provide incentives to increase community participation.
3. For Future Researchers: To obtain a more thorough grasp of green purchasing intents, future study is advised to include additional variables such as digital environmental literacy, social media influence, or trust in product labels.

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