



## INTENTION TO BUY BIODEGRADABLE TRASH BAGS: RESEARCH ON HOUSEHOLDS IN HO CHI MINH CITY

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ARTICLE INFO	ABSTRACT
<p>DOI: 10.52932/jfm.v15i5.540</p> <p><i>Received:</i> May 18, 2024</p> <p><i>Accepted:</i> July 01, 2024</p> <p><i>Published:</i> July 25, 2024</p> <p><b>Keywords:</b> Attitude; Biodegradable trash bags; Environmentally friendly product; Intention to buy; Subject norm.</p> <p><b>JEL codes:</b> M11; B14; D12</p>	<p>Most of the plastic waste polluting rivers and seas in Vietnam is single-use plastic items, of which plastic trash bags account for a large proportion. This study was conducted to determine the influence of subject norm, environmentally friendly product orientation, and knowledge about environmentally friendly products on intention to purchase biodegradable trash bags, under the mediating effect of attitude toward environmentally friendly products. To achieve the research objectives, the author surveyed 449 households in Ho Chi Minh City. Additionally, a structured interview questionnaire and the easy non-probability sampling approach were used to perform the survey. The data was analyzed using the SmartPLS 4.0 program. The results show that subject norm, environmentally friendly product orientation, and knowledge about environmentally friendly products all positively and significantly influence attitudes toward environmentally friendly products; attitudes toward environmentally friendly products also positively and significantly influence intentions to buy biodegradable trash bags; and attitudes toward environmentally friendly products act as a mediating factor in the relationship between subject norm, environmentally friendly product orientation, knowledge about environmentally friendly products, and intentions to purchase biodegradable trash bags. It is anticipated that the research's consequences will help businesses develop sensible business plans.</p>

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## 1. Introduction

The rapidly growing global economy has caused many environmental consequences such as climate change and ecological imbalance (Confente et al., 2020). In 2022, recycled waste will make up only 9% of the 430 million tons of plastic waste produced; the remaining 19% will be destroyed, and almost 50% will be buried, according to a United Nations report on the pollution caused by plastic waste (Fletcher et al., 2023). In Vietnam, plastic waste makes up 8–12% of all household waste in 2022, according to a World Bank report. This equates to roughly 2.8 million tons of plastic waste annually, or 7,800 tons of plastic waste every day. Merely 17% of the total is put to good use again, and up to 80% of plastic waste is disposable (World Bank Group, 2022). Not just Vietnam, but many other countries worldwide are concerned with promoting green consumption practices like calling on people to give up personal interests and encouraging them to engage in more environmentally beneficial behaviors (Halder et al., 2020). The government has developed programs to protect the environment and promote environmentally friendly consumer behavior, and it has launched numerous strategies with some success. However, the effectiveness of these programs is still up for debate.

Plastic waste is becoming more and more of a threat to the environment and global health (Khan et al., 2020). Throughout the global supply chain, single-use plastic packaging offers several health and environmental advantages. However, there have been negative effects on the ecosystem due to the large-scale leakage of plastic. Many ecological processes are disrupted and aquatic and marine species suffer health effects when plastic debris builds up in marine areas (Kleinhans et al., 2021). Plastic trash on land has harmed soil ecosystems

and raised the possibility of contaminating groundwater. Human health is at risk due to plastic fibers and particles discovered in salt and tap water (Maione et al., 2022). After that, intervention steps are required to decrease the amount of plastic garbage. Compostable and biodegradable plastics are a helpful substitute (Allison et al., 2021).

According to the Theory of Planned Behavior, behavioral intention is influenced by behavioral attitude (Madden et al., 1992). To encourage people to use biodegradable garbage bags, it is necessary to identify factors that influence attitudes toward environmentally friendly products. Previous research shows that subject norms, environmentally friendly product orientation, and knowledge about environmentally friendly products are important factors leading to attitudes toward these products (Chen et al., 2022; Xie et al., 2022). However, research on households in Ho Chi Minh City has not been found.

The goal of this study is to understand the influence of subject norms, environmentally friendly product orientation, and knowledge about environmentally friendly products on intention to purchase biodegradable trash bags, under the mediating effect of attitude toward environmentally friendly products. Through this research, managers at businesses selling biodegradable trash bags have a comprehensive view, thereby building strategies to promote customers' intention to use the product. Furthermore, the results also help enrich empirical research for the Theory of Reasoned Action and the Theory of Planned Behavior in the field of sustainable development research. The next parts of the study include: a literature review and hypothesis development are covered in part 2, methodology is presented in part 3, findings are covered in part 4, and part 5 concludes with suggested practical implications.

## 2. Literature review

### 2.1. Foundation theory

#### *Theory of Reasoned Action*

The Theory of Reasoned Action (TRA) was first proposed by Fishbein and Ajzen (1977). Personal Attitude toward the behavior and subjective norms have a positive effect on the intention to perform the behavior, which in turn leads to the consumer's official behavior. This theory primarily explains this association (Madden et al., 1992). The theory fully aligns with related theories of human behavioral intention as well as the five-stage purchasing decision-making process model developed by Philip Kotler and Gary Armstrong (Armstrong et al., 2014). TRA theory has been used by previous scholars to study the behavior of environmentally friendly products (Shen & Wang, 2022; Sun & Wang, 2020). Applied to this study, the TRA model was used to determine the relationship between subjective norms, attitudes toward environmentally friendly products, and intention to purchase biodegradable trash bags.

#### *Theory of Planned Behavior*

Based on the limitations of the theory of TRA theory, Ajzen proposed the Theory of Planned Behavior (TPB) (Madden et al., 1992). By incorporating the psychological concept of cognitive behavioral control, this theory developed from the theory of reasoned action. According to TPB, human behavior is completely controlled by reason. The cognitive process of carrying out a particular behavior based on prior experiences, presumptions, and anticipated challenges or outcomes is then known as cognitive behavioral control. Consequently, personal attitudes toward the behavior, contextual subjective norms, and perceived behavioral control will all have an impact on people's intention to perform a behavior as well as their actual behavior

(Ajzen & Driver, 1992). TPB has been used as a conceptual framework to model the choice of organic foods. Numerous studies examining recycling behaviors and aspirations to make green purchases have verified the TPB model (Xie et al., 2022). Using three predictors of intention attitude, subjective norm, and perceived behavioral control, TPB is used in this study.

### 2.2. Research hypothesis

According to the TPB model, attitude toward a product or service can refer to the degree to which an individual evaluates that product or service (Ajzen & Driver, 1992). Consumer attitudes have a positive and direct impact on the intention to purchase environmentally friendly products (Xie et al., 2022). It is also discovered that subjective norms have an impact on attitudes. A subjective norm is an individual's belief about whether or not a behavior should be carried out, based on that individual's significant references (Zheng et al., 2021). It has been found that word-of-mouth recommendations from relatives can have an impact on consumers' purchase intentions (Nekmahmud et al., 2022). Studies conducted by Wang et al. (2019) also demonstrate how the impact of friends and acquaintances can be significant in influencing consumers' perceptions of eco-friendly products. Furthermore, previous study demonstrates that consumer attitudes regarding products are positively influenced by social influence (Chen et al., 2022; Shen & Wang, 2022). The author then suggests the following research hypothesis in light of earlier findings:

*Hypothesis H1:* Subjective norm has a positive effect on attitude toward environmentally friendly products.

An individual with an intense preference for natural or eco-friendly products is considered to have an environmental product orientation

(Danso et al., 2020). When they are driven to connect with natural or environmentally friendly products, they will tend to see themselves as being responsible towards nature and the environment (Awan et al., 2021). From that point on, they always take the environment into account when deciding what to buy. Previous research indicates that product orientation can affect consumers' attitudes toward environmentally friendly products. The more clearly consumers are oriented toward purchasing environmentally friendly products, the more positive their attitudes toward purchasing these products will be (Danso et al., 2020; Elias, 2020). The results of Chen et al. (2022), and Elias (2020) confirm that the orientation of environmentally friendly products has a direct and positive impact on customers' attitudes toward product consumption. The author suggests the following research hypothesis based on earlier investigations:

*Hypothesis H2.* Environmentally friendly product orientation has a positive impact on consumers' attitudes to environmentally friendly products.

Consumers' subjective knowledge and comprehension of environmental characteristics and the effects of these products on the environment constitutes their knowledge of environmentally friendly products (Wang et al., 2019). According to research by Biswas & Roy (2015), understanding environmentally friendly products can reflect consumers' attitudes toward purchasing these products. Furthermore, knowledge about environmentally friendly products can impact attitudes toward them (Liobikienė & Poškus, 2019; Joshi & Rahman, 2015; Chen et al., 2022).

In contrast to the research finding that knowledge about green products has no direct effect on intention to purchase environmentally friendly products, Wang et al. (2019) claim

that attitude toward environmentally friendly products fully mediates the relationship between environmentally friendly product knowledge and intention to purchase. However, scholars have proposed and proven that there exists a relationship between knowledge about environmentally friendly products and intention to buy (Sun & Wang, 2020; Patak et al., 2021). Knowledge about environmentally friendly products positively and directly influences consumers' intention to purchase these products, particularly among women, according to research by Sun & Wang (2020). The same result was shown by Patak et al. (2021), which showed that male group members' intentions to purchase green products were completely unaffected by their knowledge of such products. The author suggests the following research hypothesis in light of earlier findings.

*Hypothesis H3.* Knowledge about environmentally friendly products has a positive effect on attitude toward environmentally friendly products.

Purchase intention is the primary driver of consumers' willingness to engage in the behavior, according to TRA theory (Madden et al., 1992). Based on their interest in and readiness to purchase a product, potential customers will decide whether or not to do so (Tirtiroglu & Elbeck, 2008). When consumers plan to buy a particular good or service in the near or distant future, it's known as their purchase intention (Armstrong et al., 2014). In conclusion, it is common to define product purchase intention as the capacity to acquire a specific good or service in the near or distant future. The likelihood that someone will choose to buy environmentally friendly trash bags over conventional items when making a purchase decision is known as their purchase intention for biodegradable plastic bags (Adeyanju et al., 2021). When making purchasing decisions, this

intention demonstrates empathy and care for eco-friendly products over conventional ones.

The intention to purchase environmentally friendly products can be influenced by their attitudes towards these products, according to Dhir et al. (2021), although other factors can also be involved. Furthermore, research by Ogiemwonyi & Harun (2020) also found that intentions to buy environmentally friendly products are positively and significantly influenced by attitudes toward the environment. Previous research has found that a consumer's attitude plays a significant role in determining their intention to make a purchase (Dhir et al., 2021; Relawati et al., 2020; Zheng et al., 2021). Households are more likely to make purchases when they learn that using biodegradable trash bags can enhance their health, benefit them and their families, or just because they enjoy using these products (Chen et al., 2022). They are more willing to spend on biodegradable trash bags. Based on the previously discussed evidence, the following research hypothesis is suggested:

*Hypothesis H4:* Attitude toward environmentally friendly products has a positive effect on the intention to purchase biodegradable trash bags.

Customers' cognitive assessment of a product's ability to protect the environment can be used to understand their attitude toward environmentally friendly products (Sun & Wang, 2020). According to Dhir et al. (2021), because of their attitude toward environmentally friendly products, people's intentions to purchase environmentally friendly products may vary depending on their level of environmentally friendly product knowledge and orientation.

Furthermore, through the mediation of attitudes toward environmentally friendly products, research by Chen et al. (2022) found that environmentally friendly product knowledge, environmentally friendly product orientation, and social influence have a positive and direct impact on the intention to purchase biodegradable trash bags. Studies by Zheng et al. (2021) demonstrate that attitudes toward environmentally friendly products and intentions to purchase them are related. Customers' intention to purchase eco-friendly products is positively and directly impacted by their attitude toward them. The author suggests the following research hypothesis based on earlier investigations:

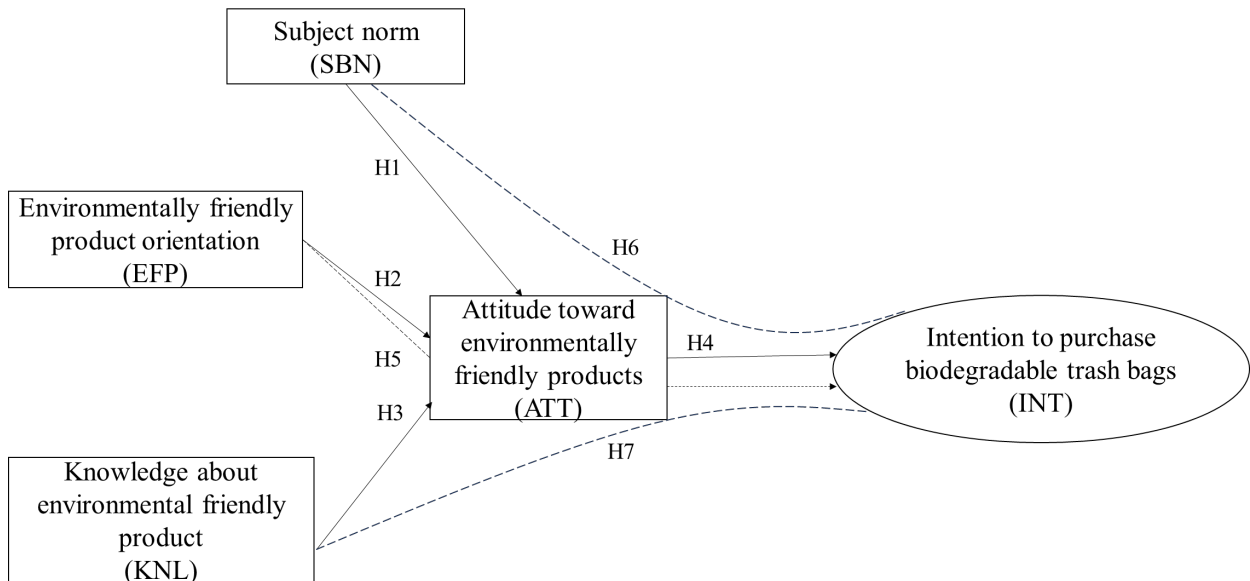
*Hypothesis H5:* Attitude toward environmentally friendly products plays a mediating role in the relationship between knowledge about environmentally friendly products and intention to purchase biodegradable trash bags.

*Hypothesis H6:* Attitude toward environmentally friendly products has a mediating role in the relationship between subject norm and intention to purchase biodegradable trash bags.

*Hypothesis H7:* Attitude toward environmentally friendly products plays a mediating role in the relationship between environmentally friendly product orientation and intention to purchase biodegradable trash bags.

The author suggests a research model based on the previous hypotheses, which is shown in Figure 1.





**Figure 1.** Research model

### 3. Research method

#### 3.1. Data collection

Households in Ho Chi Minh City that either currently use or have used biodegradable waste bags were the subjects of the survey. The data collection method employed was convenience sampling, wherein a Google Form was utilized to distribute each form to a household along with instructions for its completion. Along with the questionnaire came a letter outlining the goal of the research and guaranteeing respondent confidentiality and anonymity. Between November 15, 2023, and December 30, 2023, 500 questionnaires were sent, and 456 were collected. The necessary sample size for Structural Equation Modeling (SEM) analysis with 18 scales for the five model concepts was met by analyzing 449 answer sheets after tables with invalid ones were removed. This study applies the Structural Equation Modeling (SEM) analysis technique. According to Hair et

al. (2019), the appropriate sample size is from 100 to 400. Thus, a sample size of 449 is suitable for the necessary sample size requirement.

#### 3.2. Measurement scale

There are five concepts used including (1) Intention to purchase biodegradable trash bags, (2) Attitude toward environmentally friendly products, (3) Knowledge about environmentally friendly products, (4) Environmentally friendly product orientation, (5) Subject norm. The current study modified certain questions to make them more pertinent because the questions derived from studies were primarily related to the intention to purchase biodegradable trash bags. The questionnaire also included questions about demographic characteristics like gender, age, and income at the conclusion. The observed variables are measured using a 5-level Likert scale, from completely disagree (1) to completely agree (5).

**Table 1.** Variables in the research model

Variable	Number of questions	Source
Intention to purchase biodegradable trash bags (INT)	5	Indriani et al. (2019)
Attitude toward environmentally friendly products (ATT)	3	Indriani et al. (2019)
Knowledge about environmentally friendly products (KNL)	3	Indriani et al. (2019)
Environmentally friendly product orientation (EFP)	3	Chen et al. (2022)
Subject norm (SBN)	4	Chen et al. (2022)

### 3.3. Data analysis methods

Data processing for this study is done using SmartPLS 4.0 software, and SEM analysis is used. Two steps are involved in the data analysis process. Evaluate the scale's validity by testing the measurement model first, and then investigate the relationship between the constructs by testing the structural model.

## 4. Research results and discussion

Quantitative research was conducted through interviews with households living in Ho Chi Minh City, with a sample size of 449. The number of respondents to the survey was separated down by age and gender. The survey's distribution among the participating groups was not excessively lopsided, so it accurately captured the trend of Ho Chi Minh City residents consuming biodegradable trash bags. The gender gap is not too great, according to analytical data, with 51.7% of respondents being female and 48.63% of respondents being male. In terms of age, respondents between the ages of 26 and 35 made up 36.9% of the sample, followed by respondents between the ages of 18

and 25 (29.5%), respondents between the ages of 36 and 55 (24.7%), and respondents over the age of 55 (8.9%).

### 4.1. Measurement model evaluation

The results of testing Cronbach's Alpha, Composite Reliability (CR), and Average variance extracted (AVE) of the scale are presented in Appendix 1 online, showing that the scale has good reliability. Good reliability.

The results show that Cronbach's Alpha and composite reliability (CR) are both greater than 0.7 and fit inside the acceptable range according to Hair et al. (2017) knowing the appropriate technique can be a challenge. For example, when considering structural equation modelling (SEM) and are in the range between 0.75-0.95, so they have good reliability. The variance extracted coefficients (AVE) of the scales are all greater than 0.5, showing that the research model is reliable, and the loading coefficients of all observed variables are greater than 0.7, showing that the observed variables in the survey are reliable. The research models all achieved convergent validity (Hair et al., 2019).

**Table 2.** Results of discriminant validity evaluation

	Fornell Larcker					HTMT				
	ATT	EFP	INT	KNL	SBN	ATT	EFP	INT	KNL	SBN
ATT	0.830									
EFP	0.640	0.864				0.782				
INT	0.497	0.650	0.830			0.576	0.752			
KNL	0.604	0.584	0.446	0.813		0.780	0.732	0.539		
SBN	0.723	0.680	0.593	0.607	0.827	0.868	0.808	0.682	0.747	

**Abbreviation:** SBN, Subject norm; ATT, Attitude toward environmentally friendly product; KNL, Knowledge about the environmentally friendly product; EFP, environmentally friendly product orientation; INT, Intention to purchase biodegradable trash bags.

The results of assessing the latent variables' discriminant validity in the model are shown in Table 2. The AVE square root value of each research variable is first checked using the Fornell Larcker index of all variables to make sure it is bigger than the correlation coefficient of that variable with the other variables in the model (Fornell & Larcker, 1981). Second, all of the scale's variables have HTMT values that

are less than 0.85. Consequently, it may be said that every one of the model's latent variables achieves discriminant value (Henseler, 2017).

#### 4.2. Structural model evaluation

A sample size of 5,000 people was used to test the model's hypotheses and relationships to assess the structural model in SmartPLS using the Bootstrap analysis approach.

**Table 3.** Path model evaluation results

Hypothesis	Relationship	$\beta$ -Value	Standard deviation	t value	p-value	Conclusion
<b>Direct effect</b>						
H4	ATT -> INT	0.497	0.044	11.167	0.000	Accepted
H2	EFP -> ATT	0.211	0.062	3.427	0.001	Accepted
H3	KNL -> ATT	0.203	0.052	3.929	0.000	Accepted
H1	SBN -> ATT	0.456	0.057	7.978	0.000	Accepted
<b>Indirect effect</b>						
H6	SBN -> ATT -> INT	0.227	0.036	6.325	0.000	Accepted
H7	KNL -> ATT -> INT	0.101	0.027	3.725	0.000	Accepted
H5	EFP -> ATT -> INT	0.105	0.034	3.108	0.002	Accepted

**Abbreviation:** SBN, Subject norm; ATT, Attitude toward environmentally friendly product; KNL, Knowledge about environmentally friendly product; EFP, Environmentally friendly product orientation; INT, Intention to purchase biodegradable trash bags.



Based on the analysis results, the p-values of the relationships of hypotheses H1, H2, H3, H4, H5 and H6 all meet the requirements, less than 0.05 (Table 3). The study findings also demonstrate that there is no multicollinearity among the independent variables, with a VIF value of less than five. Since the conclusion acknowledges the relationships in the aforementioned hypothesis, the direct

relationships are as follows: Attitude toward environmentally friendly products (ATT) is directly impacted by subject norm (SBN), environmentally friendly product orientation (EFP), and knowledge about environmentally friendly products (KNL). Attitude toward environmentally friendly products (ATT) has a direct effect on the Intention to purchase biodegradable trash bags (INT) (Table 4).

**Table 4.** Total effect analysis

Relationship	$\beta$ -Value	Standard deviation	t value	p-value	Conclusion
EFP -> INT	0.105	0.034	3.108	0.002	Accepted
KNL -> INT	0.101	0.027	3.725	0.000	Accepted
SBN -> INT	0.227	0.036	6.325	0.000	Accepted

**Abbreviation:** SBN, Subject norm; ATT, Attitude toward environmentally friendly product; KNL, Knowledge about environmentally friendly product; EFP, Environmentally friendly product orientation; INT, Intention to purchase biodegradable trash bags.

Subject norm (SBN), Environmentally friendly product orientation (EFP), and Knowledge about friendly environmental products (KNL) explain 58.4% of the variation in Attitude towards environmentally friendly products (ATT), according to the  $R^2$  value of  $ATT = 0.584$ . The  $R^2$  value of  $INT = 0.542$  shows that Attitude toward environmentally friendly products (ATT) explains 54.2% of the variation of Intention to purchase biodegradable trash bags (INT). The relationships in the scale have a small to medium influence level, as shown by the effect size ( $f^2$ ).

### 4.3. Discussion

The findings indicate that the research findings are consistent with those of earlier investigations. The hypothesis H1, H2, and H3 are all accepted. They demonstrate that the following factors directly positively influence attitudes toward environmentally friendly products (ATT): subject norm (SBN), environmental friendly product orientation

(EFP), and knowledge about environmental friendly products (KNL), with corresponding standardized impact coefficients of 0.455; 0.212; and 0.205. This is similar to previous studies by Chen et al. (2022), and Elias (2020).

Attitude toward environmentally friendly products (ATT) has a direct, positive impact on Intention to purchase biodegradable rubbish bags (INT), according to accepted hypothesis H4, which has a standardized regression value of 0.500. It was also discovered that the relationships between Subject norm (SBN), Environmentally friendly product orientation (EFP), Knowledge about environmentally friendly products (KNL), and Intention to purchase biodegradable trash bags (INT) were mediated by attitude toward environmentally friendly products (ATT). The outcomes support hypotheses H5, H6 and H7. Having information, a positive attitude, and an orientation toward environmentally friendly items will influence the decision to purchase biodegradable trash bags by encouraging them to do so.

## 5. Conclusions, and practical implications

### 5.1. Conclusions

The author has developed a model, scaled, tested, and measured the relationship between subject norm, knowledge about environmentally friendly products, environmentally friendly product orientation, and intention to purchase biodegradable trash bags as an intermediary of attitude toward environmentally friendly products, all based on quantitative research methods. The findings indicate that subject norm, environmentally friendly product orientation, and knowledge about environmentally friendly products all positively and significantly influence attitudes toward environmentally friendly products; attitudes toward environmentally friendly products also positively and significantly influence intentions to purchase biodegradable trash bags; attitudes toward environmentally friendly products act as a mediating factor in the relationship between subject norm, environmentally friendly product orientation, knowledge about environmentally friendly products, and intentions to purchase biodegradable trash bags.

### 5.2. Practical implications

With the above research results, the authors propose several management implications to help businesses doing business related to biodegradable trash bags to increase customers' purchasing intention, through increasing customer satisfaction. Enhance consumer preference for environmentally friendly products, promote social impact initiatives, augment product knowledge, and foster a positive attitude toward environmentally friendly goods.

As a company involved in environmental conservation and sustainable development, firms must first bolster their brand positioning efforts. The green, clean, and ecologically friendly aspects of the goods and services that businesses offer their target clients should be their main marketing message. Businesses can also take part in raising consumer knowledge of the advantages of eco-friendly products by coordinating with relevant authorities, parties, media, press units, and surroundings. Marketing campaigns should emphasize how urgent it is to address environmental issues and give consumers helpful information about how to use this product. Lastly, to please clients and win their confidence and loyalty, firms must establish long-lasting connections with them. Building relationships with consumers should be predicated on a shared interest in taking action to safeguard the environment and a concern for environmental issues.

### 5.3. Limitations and future research directions

The study assessed how the model's components affected Ho Chi Minh City in comparison to the original objective. The study does still have certain shortcomings, though. One of the primary constraints is the relatively limited scope of the study. A significant hub for the nation's economy and home to a populous area, but the issue does not fully capture the features and effects of factors in other locations within the parameters of this study. Furthermore, the present investigation exclusively employs quantitative techniques; integrating diverse approaches will facilitate the expansion of numerous other valuable outcomes.

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