PROMOTING THE USE OF SUSTAINABLE PACKAGING IN URBAN AREAS: A REGULATORY POLICY CONTRIBUTION

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Abstract

The research conducts factors influencing on use of sustainable packaging in urban areas of Vietnam. It employs a multivariate regression analysis to analyze data collected in Vietnam's urban areas, ensuring the reliability of the model. The quantitative analysis results indicate that the convenience factors and the social factors have a positive influence on the behaviour to use sustainable packaging, while the psychology and personal factors of consumers act as inhibiting factors in making that behaviour. This study highlights the complexity of factors affecting consumers' decisions regarding sustainable packaging usage and suggests some policy implications to promote sustainable practices in the urban areas of Vietnam. Aghdam et al. (2019) agreed that in order to effectively drive the adoption of sustainable packaging, strategies should not only target external influences but also delve into the intricate realm of personal beliefs and perceptions. Enhancing public awareness and education about the environmental impact of packaging materials, along with incentivizing businesses to develop innovative, eco-friendly alternatives, can collectively steer consumers towards more sustainable choices.

Keywords: Sustainable Packaging, Environment, Influencing Factors, Behaviour-Making, Consumers

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1. INTRODUCTION

Sustainable packaging refers to packaging that has a low carbon footprint due to the production process. It promotes eco-friendly products and sustainability. Using plastic bags in daily life has become a habit in the lives of Vietnamese consumers due to their low cost and convenience and plastic bags are one of the major factors negatively impacting the environment and human health. Nevertheless, completely eliminating plastic bags would inconvenience consumers during transportation and storage. Additionally, reducing plastic bag usage does not necessarily yield immediate results. Therefore, the demand for sustainable products capable of completely replacing traditional plastic bags is the most optimal and effective solution to address these existing issues and enhance the effectiveness of consumers' behaviours to use sustainable packaging in Vietnam's urban areas.

In the contemporary landscape of global awareness and environmental consciousness, consumers' choices play a pivotal role in shaping sustainable development. One of the paramount concerns of the modern era revolves around sustainable packaging raising the promise of reducing environmental impact and fostering a sustainable planet. Zabaniotou and Kassidi (2003)

defined improved sustainability, involving in increasing the use of life cycle inventory and life cycle assessment. Vietnam, a rapidly growing economy in Southeast Asia, finds itself amidst a burgeoning urban landscape, facing an increasing usage of plastic packaging. Therefore, sustainable packaging is gradually gaining the attention of consumers in Vietnam, especially those in major urban areas like Hanoi and Ho Chi Minh City. However, the use of sustainable packaging still faces limitations.

Consumer behaviour regarding the adoption of sustainable packaging within urban areas is interesting to many researchers. Boz et al. (2020) indicate that individuals are more likely to adopt sustainable packaging if their peers, family, or social circles promote such behaviour. Blake (1999) proposes that social and institutional enablers and barriers rather than psychological explanations should be focused on to research pro-environmental choices and behaviours. Nordin and Selke (2010) suggest that convenience-enhancing and psychological features positively influence consumer perceptions of sustainable packaging, leading to higher adoption rates.

Ho et al. (2020) and Le Van et al. (2019) research green development in Vietnam. T. K. C. Nguyen et al. (2020) and Giao (2020) focus on green behaviour, in the meanwhile Nguyen et al. (2018), Nguyen et al. (2023), and Thi Tuyet Mai (2019) detail green product purchasing in Vietnam. However, there is no research on the usage of sustainable packaging in the urban areas of Vietnam. This research discovered factors influencing the use of sustainable packaging in the urban areas of Vietnam. The primary objective of this research is to identify and analyze the multifaceted factors influencing consumer behaviour towards the use of sustainable packaging in the urban areas of Vietnam. It not only contributes to the academic discourse but also offers practical insights for businesses aiming to align their strategies with sustainable development. The study employs a multivariate regression analysis to analyze data collected in Vietnam's urban areas, ensuring the reliability of the model. The quantitative analysis results indicate that the convenience factors and the social factors have a positive influence on the behaviour to use sustainable packaging, while the psychology and personal factors of consumers act as inhibiting factors in making that behaviour. Additionally, this research contributes valuable information to policymakers and environmental advocates, enabling them to formulate policies and campaigns that resonate with the urban populace, encouraging a shift towards sustainable packaging practices.

This study is structured as follows. Section 2 provides the literature review. Section 3 develops research methods to deal with empirical research on consumers' behaviour towards the use of suitable packaging in urban areas of Vietnam. Section 4 shows the research results and discussion. Section 5 suggests implications and conclusions.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

As urban areas in Vietnam continue to witness rapid economic growth and increasing consumerism, understanding the factors influencing consumer behaviour towards sustainable packaging is of paramount importance. This literature review aims to explore the key determinants shaping consumers' attitudes and preferences regarding sustainable packaging in the context of urban Vietnam.

Fishbein and Ajzen's (1975) theory of reasoned action said that an important determinant of individual behaviour is behavioural intention. Empirical studies have also shown that purchasing behaviour is influenced by intention. Lee and Hwang (2019) assert self-consciousness influences information-seeking affects decision-making and, in turn, post-purchase satisfaction. Additionally, consumer behaviour factors such as culture, society, individual traits, and psychology also influence purchasing behaviours (Nawawi, 2016).

When analyzing the intention and behaviour of using environmentally friendly products, it is clear that cultural, social, and psychological factors have a significant impact on shopping behaviour, measuring the consumer's level of acceptance of using sustainable products (Imbambi & Kinoti, 2018). Many believe that their environmental consciousness is influenced by advertising, family, and peers (Agyeman, 2014; Madushanka & Ragel, 2016).

Previous studies on plastic bags and consumers' willingness to switch to environmentally friendly alternatives have shown that education and social awareness affect the intention to use environmentally friendly products (Madigele et al., 2017). Furthermore, environmentally conscious consumers who feel social pressure tend to reduce their use of plastic bags and opt for eco-friendly products (Aghdam et al., 2019).

According to Imbambi and Kinoti (2018), there are several concepts related to environmentally friendly shopping behaviour, one of which is purchasing sustainable packaging. Sustainable packaging purchasing behaviour is defined as behaviour aimed at meeting individual or group needs and desires through the consumption of environmentally friendly products. Another important concept related to consumer purchasing behaviour is Sheth et al.'s (1991) theory. Based on theories of individual consumer preferences and behaviour, Sheth's theory consists of two components: the first is retail store choice consideration, and the second is actual purchase decision-making behaviour at that store. Sheth et al. (1991) suggest that consumers' choice of retail store is influenced by four factors: product characteristics, market conditions, individual traits, and business production. These factors influence motivation, choice, and reasoning when shopping, subsequently affecting store selection tendencies. Considerations and reasoning during shopping are the laws that govern decisions or abbreviated decisions that individual consumers use when building shopping trends for specific retail stores. These choices, however, depend on past knowledge and experiences related to shopping for a particular category of goods and services.

Therefore, the authors propose a research model of factors influencing the usage of sustainable packaging among consumers in Vietnam's urban areas. Consumer behaviour towards sustainable packaging is a complex interplay of social factors, convenience factors, personal factors and psychological factors. Understanding these factors is crucial for businesses, policymakers, and environmental advocates aiming to promote sustainable packaging choices.

Individuals are more likely to adopt sustainable packaging if their peers, family, or social circles promote such behaviour (Rokka & Uusitalo, 2008; Boz et al., 2020). Blake (1999) proposes that consumers are increasingly likely to take a brand's social and environmental initiatives into account when choosing a product. Martinho et al.'s (2015) research results point out factors of gender, environmental awareness, and social awareness influencing green purchasing.

H1: The social factors positively influence the purchasing behaviour of sustainable packaging of consumers within Vietnam's urban areas.

Goebel et al. (2012) say that consumers who perceive the convenience-enhancing service as attractive, represent a market segment that has significant revenue potential. Convenience-enhancing and psychological features positively influence consumer perceptions of sustainable packaging, leading to higher adoption rates. Ghaskadbi et al. (2023) suggest that millennials are becoming more environmentally conscious and show a strong liking for convenience looking for sustainable options when making purchases. Mathur (2016) says that the service convenience influences directly and indirectly on consumers' repurchase intention. Berry et al. (2002) have developed and formulated a comprehensive instrument for measuring service convenience.

H2: The convenience factors positively influence the purchasing behaviour of sustainable packaging of consumers within Vietnam's urban areas.

Prakash and Pathak (2017) point out factors of personal norms, attitudes, and environmental concerns that influence the intention of sustainable packaging. Braga et al. (2019) say that individuals who use green packaging are often eco-citizens. Su et al (2021) say that personal factors, including environmental knowledge of sustainable packaging and green self-identity, have affected consumers' behaviour toward purchasing sustainable grocery packaging. Jedlicka (2009) recommends the consumers' hearts and minds, the "other people" influences and barriers should be considered to maximize the sustainable packaging design.

H3: The personal factors positively influence the purchasing behaviour of sustainable packaging of consumers within Vietnam's urban areas.

Since the 1980s there has been psychological evidence of the relationship between consumer behaviour and "green" products (Nordin & Selke, 2010). Factors of consumer psychology affect sustainable packaging through the evaluation grid method of Miryoku Engineering (Hao et al., 2019). Therefore, the promotion of sustainable packaging needs to take advantage of the understanding of consumer psychology (James & Kurian, 2021).

H4: The psychological factors positively influence the purchasing behaviour of sustainable packaging of consumers within Vietnam's urban areas.

3. RESEARCH METHODOLOGY

The study aims to: 1) evaluate factors influencing the usage of sustainable packaging, and 2) recommend some measures for businesses and policymakers to promote the usage of sustainable packaging. The theory of planned behavior (TPB) and Ajzen's (1991) conceptualisation of consumer behaviour are utilized to develop a research model of consumer behaviour.

Multiple-choice questions and five-point Likert scale questions are utilized to develop the questionnaires. The surveys took place in Ho Chi Minh City and Hanoi, the two largest cities in Vietnam, using a convenient sampling method via online and onsite surveys. They help to collect answers on factors influencing their usage decision of sustainable packaging.

The online questionnaires are suitable and convenient to do surveys in big cities with low cost and quick responses (Denscombe, 2006). The online questionnaire is structured in two sections: 1) information on the socio-demographic characteristics of participants; 2) Likert scale questions are designed in order to collect answers from participants on the usage of sustainable packaging.

The research sample is described in Table 1. 68.57% of participants are below the age of 30 years old, and only 1.14% of participants were 60 years old or older. The proportion of female participants is 70.29%, much higher than the proportion of males. 50.29% of the participants earned below 5 million Vietnamese dong (VND) per month. A big proportion of participants held a bachelor's or postgraduate degree (86.29%).

Table 1. The descriptive statistics of participants

Category	*Frequency (n = 175)*	*Percentage (%)*	*Category*	*Frequency (n = 175)*	*Percentage (%)*
Age group (years old)			***Income (million VND)***		
Below 30 years old	120	68.57	Below 5	88	50.29
30–45 years old	47	26.86	5–10	40	22.86
45–60 years old	6	3.43	10–20	27	15.43
Over 60 years old	2	1.14	Over 20	20	11.43
Education			***Family structure***		
High school	11	6.29	Live alone	41	23.43
Two-year or under college diploma/certificate	3	1.71	Live with housemate(s)	8	4.57
Three-year college diploma/certificate	10	5.71	Nuclear family	61	34.86
Bachelor/Post graduate degree	151	86.29	Extended family	65	37.14
Gender			***Occupation***		
Male	52	29.71	Staff/profession	62	35.43
Female	123	70.29	Other	113	64.57

Source: Authors' elaboration.

Data were collected, cleaned and processed using Statistical Package for the Social Sciences (SPSS) 20 software, utilising a multivariate regression analysis, ensuring the reliability of the model. Descriptive statistics, mean and standard deviation were used. Measurement items of latent variables were reduced by utilising exploratory factor analysis (EFA).

The research hypotheses in this study were based primarily on four independent variables and one dependent variable. Each of these independent variables was reflected through specific observed variables as follows.

Table 2. Variables influencing consumers' sustainable packaging behaviour in Vietnam's urban areas

Variables	*Questions*
Social factors (SF)	*SF1*: I decided to use sustainable packaging based on colleagues' recommendations.
	SF2: I decided to use sustainable packaging as advice from friends and relatives.
	SF3: I decided to use sustainable packaging because experts recommend the product.
	SF4: I decided to use sustainable packaging after consulting with previous users.
	SF4: I decided to use sustainable packaging as advice from sales staff.
	SF5: I decided to use sustainable packaging due to the encouragement for sustainable consumption by the government.
Convenience factors (CF)	*CF1*: I will not buy sustainable packaging if the payment method for this product is too complicated at the time of purchase.
	CF2: I will not buy sustainable packaging if the store does not have my favourite brands.
	CF3: I decided to purchase sustainable packaging as soon as I saw them in the store.
	CF4: I only decide to purchase sustainable packaging at my convenience locations.
	CF5: I only decided to purchase sustainable packaging if the store provides reputable brands (with labels and certificates issued by reputable organizations).
Personal factors (PF)	*PF1*: I have a habit of choosing environmentally friendly products.
	PF2: I enjoy experiencing the benefits that sustainable packaging offers.
	PF3: If given a choice again, I would still choose sustainable packaging.
	PF4: I decided on the product and brand before going to the store.
	PF5: I decided to use sustainable packaging because I intend to try it.
	PF6: I decided to purchase sustainable packaging due to I think it is necessary.
Consumers' psychological factors (CP)	*CP1*: I am excited to use it after seeing advertisements for this product.
	CP2: I only buy sustainable packaging following the modern consumer trend.
	CP3: I decided to use sustainable packaging because there is a promotion for this product.
	CP4: I only buy sustainable packaging when necessary.
Outcome questions (OD)	*OD1*: I will decide to use sustainable packaging in the future.
	OD1: Sustainable packaging is my first choice in the replacement of plastic bags.
	OD1: I will encourage family and friends to buy sustainable packaging.

Source: Authors' elaboration.

4. RESEARCH RESULTS AND DISCUSSION

4.1. Cronbach's alpha

The results of the Cronbach's alpha coefficient analysis indicated that observed variables *PF4* and *PF6* had total intercorrelation values < 0.3, so these two variables were eliminated. After removing *PF4* and *PF6*, the author re-evaluated the scale's reliability. The analysis showed that the remaining 22 observed variables had sufficient reliability and consistency to form the five independent variables because they all had total intercorrelation coefficients > 0.3 and Cronbach's alpha coefficients > 0.6.

Table 3. Summary of the final examination results for each variable group

Ord.	*Variables*	*Code*	*Cronbach's alpha*
1	*Social factors*	*SF*	0.822
2	*Convenience factors*	*CF*	0.722
3	*Personal factors*	*PF*	0.776
4	*Psychology factors*	*PS*	0.625
5	*Usage behavior*	*PB*	0.739

Source: Authors' elaboration using SPSS 20 software.

4.2. Kaiser-Meyer-Olkin and Bartlet's test

The results of the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity indicate the suitability of the data for factor analysis.

After conducting the factor analysis and assessing the reliability, the data obtained from the factors in the model ensured reliability and provided a solid basis for use in the regression analysis to assess the factors influencing the behaviour to use sustainable packaging among consumers in Vietnam's urban areas. In this study, the dependent variable was determined by the average score of the evaluation questions for the five groups of criteria representing the behaviour to use sustainable packaging among consumers in Vietnam's urban area. The authors validated the model.

Table 4. KMO and Bartlett's test results

Kaiser-Meyer-Olkin measure of sampling adequacy		0.648
Bartlett's test of sphericity	Approx. Chi-square	127.344
	Df	153
	Sig.	0.000

Source: Authors' elaboration using SPSS 20 software.

4.3. Regression analysis

The coefficient of determination $R^2 = 0.59$ means that 59% of the variation in the behaviour to use sustainable packaging among consumers in Vietnam's urban areas is explained by the regression model. This criterion indicates the suitability of the regression equation and the research data. The adjusted R^2 value of 0.54 shows that the factors included in the model explain 54% of the variation in the dependent variable, indicating a good fit of the data with the model.

The Durbin-Watson statistic of 1 < D = 1.713 < 3 indicates no correlation among the independent variables.

In the analysis of variance (ANOVA) analysis, the F-statistics are 4.159, and the significance level (Sig.) is 0.000 (< 0.05), demonstrating that the regression analysis results are entirely reliable, showing significant differences among the groups.

In summary, based on the R^2 values, adjusted R^2, Durbin-Watson statistic, and ANOVA results, this multivariate regression model seems to explain a significant portion of the variation in consumers' behaviours toward to usage of sustainable packaging in Vietnam's urban areas.

Table 5. Results of multivariate regression analysis

Variables	*B*	*VIF*
SF	0.182**	1.399
CF	0.175**	1.287
PF	0.022	1.209
PS	-0.173**	1.321
R-squared	0.59	
Adjusted R-squared	0.54	
F-statistic	4.159	
Durbin-Waston	1.713	

*Note: VIF — variance inflation factor. ** The variable has an impact on the use of sustainable packaging.*
Source: Authors' elaboration using SPSS 20 software.

The tests conducted demonstrate that the independent variables have shown a significant impact on the dependent variable, which is consumers' behaviours toward to usage of sustainable packaging in Vietnam's urban areas. The regression equation is presented below.

$$PB = 3.355 + 0.182 * SF + 0.175 * CF - 0.173 * PS \quad (1)$$

The research results indicate that the scales constructed in the model have the necessary reliability as assessed through Cronbach's alpha coefficient and EFA. This demonstrates that factors are influencing consumers' behaviours toward to usage of sustainable packaging in Vietnam's urban areas. The study also notes differences in the impact of various groups of factors on consumers' behaviours toward to usage of sustainable packaging in Vietnam's urban areas. The results show that the social factors and convenience factors have a positive impact on behaviours to use sustainable packaging, with social factors (β_1 = 0.182) having the strongest influence, followed by convenience factors (β_2 = 0.175). The impact of psychological factors (β_3 = -0.173) is the lowest, indicating that psychological factors act as inhibitors to the behaviour of using sustainable packaging. This implies that, in this study, there is no significant correlation between consumers' individual preferences and psychological factors with their behaviours toward to usage of sustainable packaging. The living environment, friends, relatives, colleagues and those who have used sustainable packaging influence the intention to use sustainable packaging. Research results also show that people with higher education levels have a greater demand for sustainable packaging and, therefore, also have a greater influence on their friends and colleagues, in the meanwhile higher cost of sustainable packaging does not hinder purchasing it. Additionally, advertising does not have much influence on the choice of using sustainable packaging; consumers do not follow trends in purchasing this product, but only buy it when they feel the need and are more conscious of sustainable packaging. Consumers also tend to choose sustainable packaging based on familiar brands. However, personal awareness regarding the use of sustainable packaging is not high, so consumers only purchase sustainable packaging when necessary or when convenient in terms of payment, store location, and when there is a preferred brand. Therefore, it is necessary to create a common community with awareness of using sustainable packaging, promote widespread use and recognition of sustainable packaging, and build a number of reliable sustainable packaging brands trusted by consumers.

The findings underscore the nuanced interplay of social, personal, convenience and psychological factors shaping consumers' attitudes and behaviours towards sustainable packaging. Notably, external influences like social factors and convenience factors play a pivotal role. Agyeman (2014) also pointed out social factors as an important factor influencing consumers' behaviours towards sustainable packaging. Surprisingly, our research found that personal circumstances did not yield significant effects, highlighting potential avenues for future research in this domain. This study's robustness was further corroborated by the Durbin-Watson statistic (D = 1.713), signifying the absence of correlation among independent variables, and the ANOVA analysis, validating the reliability of the regression outcomes. These insights offer valuable guidance for businesses and policymakers aiming to promote sustainable packaging practices.

These findings can be applied to countries outside of Vietnam, especially urban areas of developing countries in order to provide some implications for policymakers, and businesses and encourage consumers to use sustainable packaging.

5. CONCLUSION

Enhancing public awareness and education about the environmental impact of packaging materials, along with incentivizing businesses to develop innovative, eco-friendly alternatives, can collectively steer consumers towards more sustainable choices. Aghdam et al. (2019) agreed that in order to effectively drive the adoption of sustainable packaging, strategies should not only target external influences but also delve into the intricate realm of personal beliefs and perceptions. The following comprehensive solutions should be implemented.

For the Vietnamese Government, firstly, the government should develop a specific roadmap and coordinated solutions in order to gradually limit single-use plastic products and promote the use of eco-friendly products. Enhance community awareness of plastic pollution risks, encouraging the abandonment of plastic bag usage and transition to eco-friendly products. Alongside promoting production, the focus should be on raising community awareness, making them abandon the habit of using plastic bags and hard-to-decompose plastic products and transitioning to sustainable products. Secondly, enforcing specific standards for sustainable products and establishing laboratories meeting the evaluation criteria for sustainable products. This is essential to ensure

the proper inspection and assessment of products labelled as sustainable or biodegradable. Thirdly, the government should implement measures to prevent tax evasion related to environmental protection, especially concerning plastic bags, as well as introduce favourable tax policies, fees, and support for businesses producing sustainable plastics to reduce production costs. Additionally, broaden the tax base and increase taxes on plastic bags, packaging, and virgin plastics.

For businesses, firstly, utilizing various advertising and awareness campaigns to reach a wider audience. Besides organizing environmental activities in specific cities in order to expand the scale of these initiatives. Secondly, additionally, displaying products prominently in stores and at significant events, making them easily visible and accessible to customers. Thirdly, allocating resources for research and development to create genuinely eco-friendly products, aligning with the concept of "sustainable" in the truest sense, including sustainable packaging.

For consumers, firstly, accessing and disseminating credible, official information from government broadcasting agencies to quickly and accurately update people on new environmental policies and regulations. Participating in the sustainable consumer movement initiated by the government. Secondly, educating not only yourself but also others about the benefits of sustainable packaging. Contributing to building a safe and environmentally friendly community. Thirdly, conducting thorough research about products to make informed purchasing behaviours. Ensuring the chosen products genuinely contribute to personal health, family well-being, and environmental protection.

By implementing these comprehensive solutions, the usage of sustainable packaging can be promoted effectively, benefiting both consumers and the environment.

The use of sustainable packaging has become a global trend, especially in developed countries. Even governments in African countries like Kenya, Uganda, and Tanzania have implemented policies to restrict plastic usage and encourage people to use sustainable packaging. The Chinese government has banned the business of thin plastic bags with thicknesses below 0.025 mm. The most aggressive country in completely eliminating the use of nylon bags is the United Kingdom, with supermarkets banning nylon packaging. The Vietnamese government has recognized this trend; however, there is a need for stronger measures to restrict the use of nylon packaging. This study serves as a cornerstone, paving the way for further research and policy initiatives aimed at fostering a sustainable, more environmentally conscious society, where sustainable packaging becomes the norm rather than the exception.

The research also has some limitations. Firstly, the online survey limited communication between the research team and the participants. Secondly, the sample size was not large enough to cover all the needs of consumers in major cities. Thirdly, the number of research factors was limited, not encompassing all influencing factors such as the cost of sustainable packaging, the quality of sustainable packaging, etc. Conducting further research on these influencing factors could yield more useful research results and, therefore, lead to more specific policy implications.

In essence, future studies will delve into the intricacies of consumer behaviour, considering the cultural and regional diversities that impact consumer choices globally, exploring the various factors and shedding light on the path towards a more sustainable future for packaging practices in urban areas of Vietnam. Future studies could enlarge the scale or location making the study more useful.

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