

ENVIRONMENTAL CONCERN AND PURCHASE INTENTION FOR SUSTAINABLE PRODUCTS: THE MEDIATING ROLE OF SUBJECTIVE NORMS**Nam Nguyen Kim**ncsnam2014@gmail.com

Ho Chi Minh City Industry and Trade College, Vietnam.

ABSTRACT

The objective of this study is to examine the effect of environmental concern (EC) on consumers' purchase intention for sustainable products in Vietnam through the mediating role of subjective norms (N). Data were collected through a survey questionnaire with a sample size of 206 consumers. After screening and cleaning the data, the study conducted data analysis using SPSS and AMOS software. The structural equation modeling (SEM) was employed to test the research model and hypotheses. The study developed a model with four hypotheses, all of which were supported. The results of the model and hypothesis testing indicate that EC has a positive effect on both N and PI. Similarly, N also has a positive effect on PI. In addition, N plays a partial mediating role in the relationship between EC and PI. These findings provide several important implications to support managers in promoting sustainable consumption behavior by enhancing environmental concern and social norms.

Keywords:

Sustainability, environment, intention, consumption, Vietnam.

INTRODUCTION

Sustainable consumption is considered an important trend in the modern world to address climate change and environmental degradation. It is a consumption trend that attracts attention from various stakeholders, ranging from policymakers to business managers as well as researchers. Therefore, when referring to sustainable consumption, it not only concerns the selection and use of environmentally friendly products but also reflects individuals' awareness of their responsibility toward the community and society in adopting responsible consumption practices. In other words, it involves the awareness of consuming products that are environmentally friendly and cause less harm to the environment and society (Stern, 2000; Geiger et al., 2018). In the consumer purchasing process, intention plays an important role in guiding behavior. Therefore, identifying the factors that drive purchase intention becomes crucial in understanding the process leading to the actual purchasing behavior of consumers (Ajzen, 1991).

In recent years, the trend of green consumption has become increasingly important for both consumers and society. For young and highly educated consumers, awareness of environmental issues and sustainable consumption has become more important than ever. Many studies have demonstrated that an increasing number of consumers are concerned about sustainable consumption in their purchasing processes. For instance, studies by Joshi & Rahman (2015) and Paul et al. (2016) have found that consumers' concern plays an important role in promoting the intention to purchase green products. Therefore, not only policymakers and businesses but also researchers have shown great interest in exploring the factors that drive sustainable consumption behavior (Ajzen, 1991; Geiger et al., 2018).

To examine consumer purchasing behavior, researchers often employ various theoretical models such as the Theory of Planned Behavior (TPB) and the Value-Belief-Norm (VBN) theory to explain green consumption or sustainable consumption behavior (Ajzen, 1991; Stern, 2000). Among the variables in the TPB model, subjective norms play an important role; in combination with environmental cognition factors such as environmental concern, they help better explain consumers' behavioral intentions (Bamberg & Möser, 2007).

Previous studies suggest that environmental concern reflects the level of awareness, worry, and personal responsibility regarding environmental issues, representing an important psychological driver of individuals in engaging in environmentally friendly consumption behaviors such as green consumption or sustainable product consumption (Stern, 2000). Meanwhile, subjective norms refer to social pressures and expectations from family, friends, relatives, and the broader community regarding sustainable consumption behavior. This is also

considered a factor that significantly influences behavioral intention, as noted by Ajzen (1991), in that positive environmental norms can reinforce personal motivation and encourage cooperative behavior.

Although a number of studies have examined the relationships among factors such as environmental concern, subjective norms, and purchase intention for sustainable products, most of them have been conducted in developed countries and have received limited attention in developing country contexts such as Vietnam. Based on the foundations of TPB and VBN theories, this study investigates the relationships among environmental concern, subjective norm, and the intention to purchase sustainable products, emphasizing the mediating role of subjective norm.

The model and research hypotheses were developed based on theoretical frameworks and prior related studies. The hypotheses and research model will be analyzed using structural equation modeling (SEM). The study's results have important practical and theoretical implications by providing empirical evidence for managers to design communication, education, and marketing strategies to promote sustainable consumption in the context of modern consumers who are increasingly aware of their environmental and social responsibilities (Paul et al., 2016; Joshi & Rahman, 2015).

THEORETICAL FOUNDATION

To construct the research model, this study uses two foundational theories, TPB and VBN. The TPB posits that sustainable consumption behavior is understood as the process of selecting, purchasing, and using products or services with the aim of minimizing their negative impacts on the environment and society (Ajzen, 1991; Stern, 2000). TPB is widely used in behavioral research. The key variables for explaining behavior under TPB include attitude, subjective norm, and perceived behavioral control. However, TPB alone is not sufficiently powerful to explain green consumption behavior. Therefore, studies have supplemented the TPB model with various additional variables, particularly environmental variables; commonly considered factors include environmental concern and environmental knowledge. Among these, environmental concern and subjective norm play important roles in shaping behavior in the context of sustainable consumption. Overall, these theories have been widely applied to explain environmentally oriented consumer decisions. This study focuses on examining behavioral intention as influenced by environmental concern and subjective norm as its antecedents, which in turn lead to actual consumption behavior (Ajzen, 1991; Stern, 2000).

Environmental concern:

EC refers to the level of awareness and emotional engagement of consumers toward environmental issues, including the degree of concern, priority, as well as the sense of responsibility individuals hold regarding environmental matters (Stern, 2000; Ajzen, 1991). Previous studies such as Maichum et al. (2016) and Andhy Setyawan et al. (2018) have confirmed that the higher the level of environmental concern among consumers, the more likely they are to exhibit positive attitudes toward sustainable products, thereby promoting sustainable consumption intentions and behaviors.

These findings are also supported by other studies, emphasizing that individuals who are concerned about the environment tend to engage in behaviors that do not harm the environment, thereby encouraging the consumption of environmentally beneficial products (Joshi & Rahman, 2015; Paul et al., 2016; Andhy Setyawan et al., 2018). Theoretical and empirical evidence thus indicates that EC has a direct and positive impact on purchase intention for sustainable products. In addition, individuals with greater awareness of the environmental impacts of products are more likely to adjust their consumption preferences toward more environmentally friendly choices (Ajzen, 1991; Stern, 2000).

Subjective norms:

Subjective norms is understood as the process by which individuals perceive social pressure and expectations from important others, such as family members, relatives, friends, or the broader social community, when performing a particular behavior (Ajzen, 1991). Therefore, in the context of sustainable consumption, subjective norms reflect the extent to which consumers perceive that their close social relationships and reference groups support or expect them to engage in the consumption of sustainable or environmentally beneficial products (Stern, 2000).

Many previous studies based on the TPB have demonstrated that subjective norms have a positive influence on purchase intention, particularly in areas such as green consumption, organic product purchasing, and environmentally friendly products (Cialdini & Goldstein, 2014; Joshi & Rahman, 2015; Paul et al., 2016).

This evidence indicates that subjective norms are an important factor in enhancing consumers' readiness and motivation to engage in sustainable consumption behavior (Ajzen, 1991; Bamberg & Möser, 2007).

In addition, recent studies suggest that EC may also positively influence subjective norms (Paul et al., 2016; Maichum et al., 2016). This implies that as consumers become more concerned about environmental issues, they are more likely to communicate pro-environmental norms to others—particularly family members, friends, and colleagues—thereby increasing these individuals' awareness of social expectations related to sustainable behavior (Stern, 2000). This evidence indicates that EC not only has a direct effect on PI but also exerts an indirect effect through N as a mediating variable (Paul et al., 2016; Maichum et al., 2016). In other words, subjective norms play a dual role as both a bridge between individual awareness and social pressure and as a factor that amplifies the effect of EC on behavioral intention (Ajzen, 1991; Bamberg & Möser, 2007; Joshi & Rahman, 2015).

Based on the above theoretical foundations and empirical evidence, this study proposes the following hypotheses H1, H2, H3, H4:

Hypotheses H1: Environmental concern has a positive effect on subjective norms.

Hypotheses H2: Environmental concern has a direct positive effect on purchase intention for sustainable products.

Hypotheses H3: Subjective norms have a positive effect on purchase intention for sustainable products.

Hypotheses H4: Subjective norms mediate the relationship between environmental concern and purchase intention for sustainable products.

The research model is developed by integrating individual cognitive factors (Environmental concern) and social factors (Subjective norms) to explain purchase intention for sustainable products (intention for sustainable products), thereby contributing to a clearer understanding of the interaction mechanisms among these variables and extending existing theoretical models of sustainable consumption behavior.

RESEARCH MODEL, HYPOTHESES, AND METHODOLOGY

Sample:

Data were collected via direct surveys of consumers. Due to resource constraints, this study employed a convenience sampling method to collect data from consumers who have the ability to purchase sustainable products. After data collection, the data were screened and cleaned by removing unacceptable questionnaires. The total number of observations formally used for the final analysis was 206. In the study sample, males accounted for approximately 32% and females approximately 68%; the age group of 25–35 years accounted for the majority at approximately 86.9%. The sample was predominantly composed of respondents holding a university degree, representing 87.4%.

Measurement:

The scales in this study were adopted from previous research. Specifically, this study constructs three scales: 'Environmental Concern' (EC), 'Subjective Norm' (N), and 'Intention to Purchase Sustainable Products' (PI). Each scale was measured using a 5-point Likert scale from 'strongly disagree' (score 1) to 'strongly agree' (score 5). The EC scale includes 4 observed items, the N scale includes 3 observed items, and the PI scale includes 3 observed items. The observed variables were adapted and refined from previous studies such as Yadav and Pathak (2016), Paul et al. (2016), and Maichum et al. (2016).

Data analysis:

After data cleaning, the dataset was analyzed using SPSS and AMOS software. First, the study assessed the reliability of the scales using Cronbach's alpha and conducted Exploratory Factor Analysis (EFA) to confirm the initial factor structure. Next, Confirmatory Factor Analysis (CFA) was performed to evaluate the fit of the measurement model. Finally, Structural Equation Modeling (SEM) was employed to test the research hypotheses. The model fit in both CFA and SEM analyses was evaluated using indices based on the criteria proposed by Hair et al. (2010), including $CMIN/df < 3$, $CFI > 0.9$, $TLI > 0.9$, and $RMSEA < 0.08$. In addition, composite reliability and average variance extracted (AVE) were used to assess the reliability and discriminant validity of the scales.

RESULTS AND DISCUSSION

Scale reliability:

To assess the reliability of the scales, the study first examined Cronbach's alpha values. The results indicate that all Cronbach's alpha coefficients of the scales in the research model met the acceptable threshold. Specifically, the Cronbach's alpha for the EC scale is 0.874, for the N scale is 0.858, and for the PI scale is 0.882. All item–

total correlation coefficients are greater than 0.3. Therefore, the reliability of the scales is considered satisfactory. In the next step, the study conducted Exploratory Factor Analysis (EFA). The results show that the data are suitable for factor analysis, with KMO = 0.824 and Bartlett’s test: $\chi^2 = 1138$, $df = 45$, $p < 0.001$. Using Promax rotation, three distinct factors were extracted corresponding to EC, PI, and N, with a total variance explained of 67.67% (see Table 1). Thus, the results indicate that the scales meet the requirements for reliability, convergence, and validity.

Table 1: Results of CFA and Cronbach’s Alpha Analysis

Variables	Items	Factor loadings	Cronbach’s Alpha
Subjective norm (N)	N1	0.771	0.858
	N2	0.832	
	N3	0.850	
Environmental concern (EC)	EC1	0.722	0.874
	EC2	0.851	
	EC3	0.772	
	EC4	0.850	
Purchase intention (PI)	PI1	0.851	0.882
	PI2	0.879	
	PI3	0.808	

Confirmatory Factor Analysis (CFA)

The results of the measurement model analysis using CFA indicate that the model fit meets the acceptable thresholds. Specifically, the values of $\chi^2/df = 1.438$, $p = 0.052$, CFI = 0.989, TLI = 0.985, and RMSEA = 0.043 all satisfy the recommended criteria proposed by Hair et al. (2010). The assessment of composite reliability and average variance extracted shows that all indices meet the required standards. In particular, all CR values are above 0.7 and all AVE values exceed 0.5, meeting the minimum thresholds suggested by Hair et al. (2010) (see Figure 1).

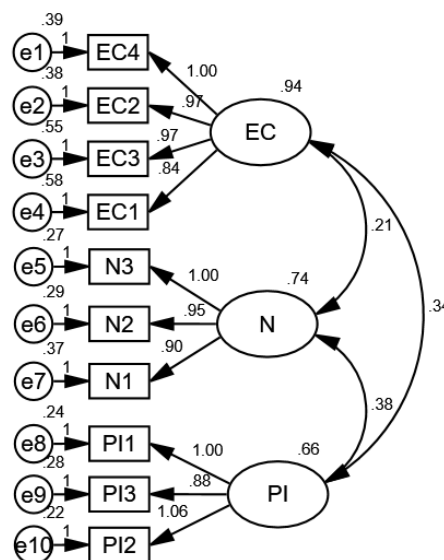


Figure 1: Results of confirmatory factor analysis

Hypothesis testing:

The results of the structural model analysis indicate a good fit with the data. Specifically, the fit indices such as $\chi^2/df = 1.414$, $p = 0.060$, CFI = 0.988, TLI = 0.983, and RMSEA = 0.045 all meet the thresholds suggested by Hair et al. (2010). The results of hypothesis testing show that all proposed hypotheses are supported. Specifically:

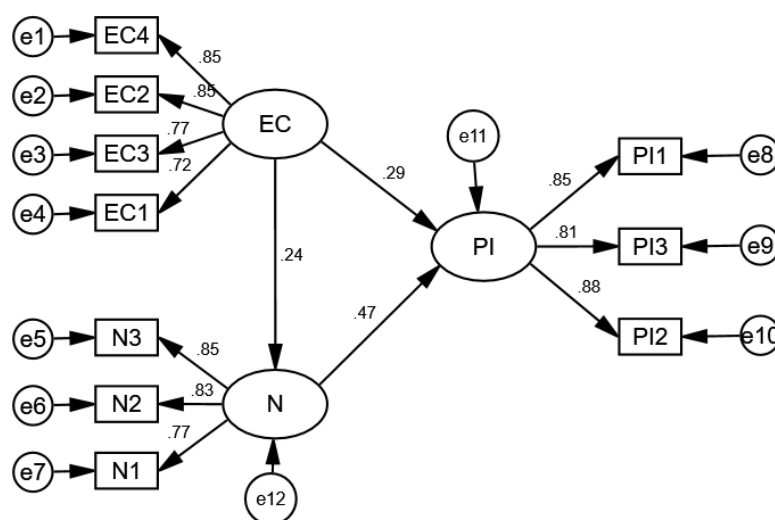
Hypothesis H1 which proposes a positive effect of EC on N is supported at the 5% significance level. The unstandardized beta coefficient is 0.214 with $p = 0.002$, which is less than the 5% significance level. Similarly, Hypothesis H2 which proposes a positive relationship between EC and PI is also supported, with a

unstandardized beta coefficient of 0.238 and $p < 0.001$ which is less than the 5% significance level. Hypothesis H3, which proposes a positive relationship between N and PI is supported as well with a unstandardized beta coefficient of 0.440 and $p < 0.001$, which is less than the 5% significance level. Finally, Hypothesis H4 proposes the mediating role of N in the relationship between EC and PI. The analysis results indicate that H4 is supported, with an indirect standardized beta coefficient of 0.115 and $p = 0.014$, which is less than the 5% significance level. These results suggest that N plays a partial mediating role in the relationship between EC and PI (see Table 2).

Table 2: Results of hypothesis testing

Hypothesi	β	P-value	Decision
EC \rightarrow N (H1)	0.243	0.002	Accepted
EC \rightarrow PI (H2)	0.289	0.000	Accepted
N \rightarrow PI (H3)	0.471	0.000	Accepted
EC \rightarrow N \rightarrow PI (H4)	0.115	0.014	Accepted

Thus, the SEM analysis results indicate that all hypotheses are supported. Specifically, EC has a positive effect on N (H1 supported) and directly affects PI (H2 supported). Similarly, N has a positive effect on PI (H3 supported), and N plays a partial mediating role in the relationship between EC and PI (H4 supported).

**Figure 2: Results of Structural Equation Modeling****Discussion**

The hypothesis testing results show that environmental concern ($\beta = 0.238$) and subjective norm ($\beta = 0.440$) are both important factors that drive the intention to purchase sustainable products. The influence of N on PI is stronger than the effect of EC on PI, which indicates the importance of subjective norm in promoting intentions to purchase sustainable products. The direct effect of EC on PI indicates that when consumers have higher levels of environmental concern, they tend to increase their intention to buy sustainable products. These findings are quite consistent and similar to previous studies (Yadav & Pathak, 2016; Paul et al., 2016; Maichum et al., 2016). These findings provide a basis to support managers in designing communication strategies to raise consumers' environmental concern and thereby promote intentions to consume sustainable products. Emphasizing responsible consumption and highlighting consumers' environmental concern are important messages to activate green consumption behavior.

The relationship between subjective norm and green purchase intention has also been found in previous empirical studies. This study reaffirms that result. In other words, subjective norm has a strong positive effect on consumers' intention to purchase green products. This emphasizes that pressures from significant others shape environmentally responsible consumption behavior. The relatively high unstandardized coefficient ($\beta = 0.440$) indicates that advice, normative pressures, and expectations from family, friends, and the community have a clear influence on the intention to choose sustainable products. These findings are consistent with previous studies (Paul et al., 2016; Maichum et al., 2016). This result suggests that social pressure factors not only

support but can also amplify the effectiveness of communication programs aimed at raising consumers' environmental awareness. It also implies that firms and policymakers can leverage social and community communication channels to exert influence and increase persuasiveness, thereby more effectively promoting sustainable consumption behavior.

An important finding of this study is that subjective norm participates in the relationships as a partial mediating factor. This result implies that EC affects PI both directly and indirectly. Therefore, raising consumers' environmental concern is an important and necessary factor to strengthen intentions to purchase green products, but this also underscores the impact of social factors such as opinions of significant others, which will further stimulate green purchase intentions. Hence, increasing individual consumers' awareness should be combined with creating social pressure to shape sustainable consumption behavior. This study provides empirical evidence that managers can use as a basis to promote green consumption behavior.

CONCLUSION

Sustainable consumption is an inevitable trend that attracts attention from many stakeholders, from policymakers to managers and researchers. Sustainable consumption behavior is influenced by many different factors. Although some prior studies have examined factors affecting sustainable consumption behavior, research on this topic in Vietnam remains fairly limited. In addition, the relationship between environmental concern and the intention to purchase sustainable products, with the mediating role of subjective norm, has not been fully examined across many different cultural contexts. Therefore, this study focuses on the role of subjective norm to better explain the relationship between environmental concern and the intention to purchase green product.

Data were collected via direct surveys of consumers using a convenience sampling method. The survey yielded a final sample size used for analysis with a structural equation modeling (SEM) framework. To test the model and research hypotheses with SEM, AMOS software was used. The study's analysis found the hypothesized relationships to be supported. Specifically, the proposed hypotheses that EC affects PI were supported, and EC also directly affects N. Notably, this study found that N has a relatively strong direct effect on PI. In addition, an important finding of this study is the role of subjective norm. Specifically, subjective norm plays a partial mediating role in the relationship between EC and PI. These results clarify the mechanism by which environmental concern influences sustainable consumption intention not only directly but also through the bridging role of subjective norm. This underscores the importance of social influence in reinforcing the intention to purchase sustainable products as a mediating factor.

Like other studies, although this study has achieved some encouraging results, it still has several limitations that need to be addressed. First, this study constructed a model limited to two explanatory variables for green purchase intention. Meanwhile, in reality, consumers' purchase intentions can be influenced by many other factors such as attitude, perceived behavioral control, price, or other variables. In addition, this study is also limited by using a convenience sampling data collection technique, which is another issue that needs to be remedied. Therefore, future studies should seek to overcome these limitations so that research can achieve greater representativeness and reliability. As with other studies, this study also has certain remaining limitations.

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