

**Innovation for green future-investigating the driving force behind Vietnamese consumers' intention and their green behavior**

**Inovação para um futuro verde - investigando a força motora por trás da intenção dos consumidores vietnamitas e seu comportamento verde**

**Innovación para un futuro verde: investigación de la fuerza motriz detrás de la intención de los consumidores vietnamitas y su comportamiento ecológico**

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## Abstract

Innovation for Green Future to focus on the environmental protection, which is the burning issue at the time being in Vietnam. This study seeks an answer to the question of why consumers have green intention but do not take green consumption behavior. Findings from a survey on 486 Vietnamese consumers have shown that such moderating variables as gender and income have certain impacts on their green consumption. In addition, consumers' awareness about product effectiveness and availability are the two factors drive their green consumption despite their earlier green intention. The paper also attempts to give policymakers and businesses relevant instruments to encourage Vietnamese consumers to turn their intention into green consumption behavior.

**Keywords:** Moderating factors, green drives, green intention, green consumption, green consumer behavior, innovation for green future

## Resumo

Inovação para o Futuro Verde com foco na proteção ambiental, que é a questão candente no momento no Vietnã. Este estudo busca uma resposta para a questão de por que os consumidores têm intenção verde, mas não adotam comportamento de consumo verde. As descobertas de uma pesquisa com 486 consumidores vietnamitas mostraram que variáveis moderadoras como gênero e renda têm certos impactos em seu consumo verde. Além disso, a conscientização dos consumidores sobre a eficácia e disponibilidade do produto são os dois fatores que impulsionam seu consumo verde, apesar de sua intenção verde anterior. O artigo também tenta dar aos formuladores de políticas e empresas instrumentos relevantes para encorajar os consumidores vietnamitas a transformar sua intenção em comportamento de consumo verde.

**Palavras-chave:** Fatores moderadores, impulsos verdes, intenção verde, consumo verde, comportamento do consumidor verde, inovação para o futuro verde

## Resumen

La innovación para un futuro verde se centra en la protección del medio ambiente, que es el tema candente en este momento en Vietnam. Este estudio busca una respuesta a la pregunta de por qué los consumidores tienen intenciones ecológicas pero no adoptan un comportamiento de consumo ecológico. Los resultados de una encuesta a 486 consumidores vietnamitas han demostrado que variables moderadoras como el género y los ingresos tienen ciertos impactos en su consumo ecológico. Además, la conciencia de los consumidores sobre la eficacia y la disponibilidad de los productos son los dos factores que impulsan su consumo ecológico a pesar de su intención ecológica anterior. El documento también intenta proporcionar a los responsables de las políticas y a las empresas instrumentos relevantes para alentar a los consumidores vietnamitas a convertir su intención en un comportamiento de consumo ecológico.

**Palabras clave:** Factores moderadores, impulsos ecológicos, intención ecológica, consumo ecológico, comportamiento del consumidor ecológico, innovación para un futuro verde

## 1. INTRODUCTION

In 2020, the campaign of the World IP Day (26 April) celebration was launched by World Intellectual Property Organization (WIPO) with the topic of Innovation for Green Future. Building a green future with innovation for the next generation is also the slogan of Sustainable Development of Vietnam in the period 2011-2020 was launched in the Governmental Decision No. 432/QĐ-TTg, which has been appropriate with the Agenda for Sustainable Development Goals 2030 of United Nations (Hai, 2018). There are many measures made by the Government to foster research, innovation for business and production with the aim to raising consumers' awareness of green behavior by resolving real matters of environment such as recycling, water cleaning, poisonous exhausted air treating, energy saving, green technology for conserving ecosystems, etc., which supports for sustainability and environmental protection (Thu Trang, 2020). Based on the principle of environmental sustainability, enterprises supply friendly-environmental products and services, craft villages not only focus on production and business but also build the system of environmental protection, waste treatment. Farmers are encouraged to use sustainable natural materials, to develop clean agriculture, organic agriculture, to ensure food safety, food security. People have civilized life style, save energy, save and protection water sources, etc. However, while consumers have green intention but they do not take green consumption behavior.

In fact, substantial research has looked at the determinants of green consumer behavior, but there has not been theoretical evidence on why consumers decide on or against a certain green product, and why they do not engage in green consumption behaviors though they are environmentally conscious (Rylander and Allen, 2001). The lack of knowledge that drives consumers to focus on environmental protection rather than buying green products indicates a significant research gap. Despite remarkable effort to invest in green labels, the market size of green products remains small. Approximately 30% of British consumers reported that they were environmentally conscious but such perception was not translated into green consumption behavior (Young et al., 2009).

Furthermore, prior research have indicated a causal relationship between consumers' intention and green behavior, that is, consumers' intention has positive influence on their green behavior. However, there is a lack of consistency in reported results across these studies. In other words, researchers call this the intention – behavior gap in green consumption.

From the perspective of the Theory of Reasoned Action (TRA) and Theory of Planned Action (TPA), research on green consumption behavior can be categorized into three groups: The first one attempts to explain the green purchase intention (Gleim Mark R. et al., 2013); The second one expounds the green consumption behavior without relating to intention such as Kelkar Mayursh et al., 2011, Lan Shu-Hui and Tzu-Chun Sheng, 2014; The third group including Wu Shwu-Ing and Jia-Yi Chen (2014), Nguyen Vu Hung et al. (2015) used the Theory of Reasoned Action to test the relationship between influencing factors and green consumption behavior in regard to consumers' intention.

However, it can be implicitly understood from these studies that consumer intention and consumer behavior are the same or there is a very close relationship between them. Such viewpoint may lead to the following potential consequences: First, it poses challenges to explain why consumers have positive attitude towards environmental protection and green consumption, even have intention to buy green products but they don't perform green consumption behavior (Ip Y. K., 2003; Nguyen Vu Hung et al., 2015). Second, such viewpoint may cause the ignorance of decisive factors that help drive the transformation from intention to behavior. In fact, findings from the experimental research conducted by Ajzen and Fishbein (2005) based on the Theory of Reasoned Action also revealed the inconsistency between intention and behavior in a multitude of consumption domains.

In Vietnam, the issue of green consumption based on different aspects of consumers, businesses and government has not been paid proper attention. There is neither relevant scientific research nor in-depth academic studies related to this area (Vu Anh Dung, 2012). Existing literature primarily focuses on factors influencing consumers' green intention and the impacts of consumers' intention on their green behavior. This paper therefore examines specific moderating variables and controlling variables that help better predict consumers' green behavior, which is very important for such developing country as Vietnam where socio-

economic development often comes at the expense of environmental pollution or workers and consumers' health.

## 2. LITERATURE REVIEW

In Vietnam, the issue of green consumption based on different aspects of consumers, businesses and government. The slogan of Sustainable Development of Vietnam in the period 2011-2020. As earlier mentioned, Building a Green Future with Innovation for the next generation was launched in the Governmental Decision No. 432/QĐ-TTg has been appropriate with the Agenda for Sustainable Development Goals 2030 of United Nations. Moreover, in Vietnam, the Government paid attention to the green consumption and production. There are two laws and one Government's decree which mention on the green consumer's behavior: Law on Food Safety in 2010<sup>1</sup> and Law on Protection of Consumers' Rights in 2010<sup>2</sup> and the Decree No.43/2017/ND-CP on Label dated 14 April 2017. Regarding the implementation of the Law on Food Safety in 2010, there are many sublaws stipulated by the Government and relevant Ministries to guide implementation of this Law such as Decree No.15/2018/ND-CP of the Government which guiding the implementation of Law on Food Safety; Decree No.155/2018/ND-CP of the Government which modifying the Decree No.15/2018/ND-CP and guiding the implementation of the Law on Food Safety about the administrative sanction in the case of violation; the Interministerial Circular No. 34/2014/TTLT-BYT-BNNPTNT-BCT of three Ministries (Ministry of Health, Ministry of Agriculture and Rural Development, Ministry of Industry and Commerce) guiding the labelling for packaged food, food additives and food aid-processing materials; the Interministerial Circular No. 13/2014/TTLT-BYT-BNNPTNT-BCT of three Ministries (Ministry of Health, Ministry of Agriculture and Rural Development, Ministry of Industry and Commerce) guiding the implementation of cooperation for the national administration of food safety and about 20 different relevant sublaws from the three said above Ministries.

Regarding the green consumption behavior, various theoretical models have been used to describe green consumption behavior, including the Theory of Reasoned Action (Ajzen Icek and Martin Fishbein, 1980), the updated Theory of Planned Action (Ajzen Icek, 1991), the

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<sup>1</sup> Law on Food Safety, Law No. 55/2010/QH12, on 17 June 2010.

<sup>2</sup> Law on Protection of Consumers' Rights, Law No. 59/2010/QH12, on 17 November, 2010.

General Theory of Marketing Ethics (Hunt Shelby D. and Scott J. Vitell, 1986), and the Theory of Level of Relevance (Zaichkowsky Judith L., 1985).

Factors influencing green consumption behavior:

In previous studies about antecedents of intention, a fundamental principle has been highlighted, that is, individuals tend to act based on their intention when they can control their behavior's outcomes. According to the Theory of Planned Behavior (TPB), behaviors are influenced by intentions, which are determined by three factors: attitudes, subjective norms, and perceived behavioral control (Ajzen, 1985).

Similarly, Ajzen and Fishbein (2005) also put forward important factors that influence intentions based on the Theory of Reasoned Action, including: attitudes, subjective norms and perceived behavioral control. These factors have been described in studies about green consumption (Wu Shwu-Ing and Jia-Yi Chen, 2014). Furthermore, a number of research distinguished between attitude towards environment in general and attitude toward green consumption (Tan Booi-Chen, 2011).

## **2.1 The relationship between green intention and green consumption behavior**

The Theory of Planned Action which was first proposed by Ajzen in 1980 examined the relationship between attitude, belief and behavior. It also emphasized that there is always a period of time when consumers have intention to do something before, they actually engage in a specific consumption behavior. Hence, green consumers tend to buy things purposefully rather than impulsively, in other words, they are less likely to be influenced by compulsive buying behavior.

In their study in 1991, Dodds, Monroe & Grewal reported that consumers' intention reflects their evaluation or attitude to a certain product which can be affected by external factors that make them willing to buy. Given the fact the consumer is willing to buy a certain product, the clearer their intention is, the more likely they buy the product.

Hosein also indicated that attitude is the best predictor of the intention to buy green products. To be more specific, consumers' intention to buy green items can be determined by their positive attitude towards environmentally friendly products. However, consumption behavior differs from consumption intention in that the former involves concrete purchases performed by consumers.

In 2012, Dr. Vu Anh Dung and his colleagues proposed the model of factors influencing green behavior of Vietnamese consumers. A survey questionnaire on more than 200 Vietnamese consumers indicated that intention significantly influences green consumption behavior. That is, those with clearer intention to buy tend to engage more in green behavior and vice versa.

## **2.2 Moderators of the relationship between intention and green consumption behavior**

Studies on green consumption have shown that green purchase intention can be affected by green products' availability (Gleim Mark R. et al., 2013). If green products are displayed at highly visible placements, passers-by who already have green intention are more likely to make purchases because "visually stimulating" green products can help them vividly recall specific consumption situations. In other words, the availability of green products can motivate customers to go ahead with their intention (see Ajzen Icek and Martin Fishbein, 2005).

Previous studies have shown that the limited availability of green and organic products in the supermarkets may hinder green consumption (Byrne et al., 1991; Davies, 1995). Vermeir and Verbeke (2004) also argued that despite their green intention, many consumers do not engage in actual green behavior due to the lack of availability for green products. Similarly, Mainieri (1997) believed that consumers' environmental consciousness can not be fully translated into green behavior partly due to the insufficiency of environmentally friendly products. In the same vein, many authors including Ismail and Panni (2008), Ismail, Panni and Talukder (2006) and Panni (2006) reaffirmed that the availability of green products can significantly contribute to green consumption behaviors. Previous research showed that 30% of consumers did not turn their green intention into concrete purchases due to shopping inconveniences (Young et al., 2010). The transformation from green intention into green behavior is affected by several intermediate factors including convenience during purchase (Zhu et al. 2012). In her research in 2006, Seyfang concluded that the local green food network played an essential role for consumers to transform their intention into actual green purchases. Bonini and Oppenheim (2008) reaffirmed that the limited availability of green food could hinder green consumption behavior. The research conducted by Athanasios Krystallis and George Chrysosoidis (2015) in Greece on organic food consumption also revealed that the availability of organic food and other products in the market did affect consumers' purchasing



behavior. Another study entitled “Green Food Consumption Intention, Behaviors and Influencing Factors among Chinese Consumers” carried out by Qinghua Zhu, Ying Li, Yong Geng, Yu Qi in 2012 confirmed that purchasing convenience positively influences the relationship between green intention and green consumption behavior, with the Beta coefficient calculated at 0.09.

According to studies on green consumption, the perceived behavioral control and perceived consumer effectiveness on green products can be interrelated (Gleim Mark R. et al., 2013). If consumers are absolutely certain about the originality and authenticity of a given green product, their consumption intention can be driven. Consequently, the perceived green intention will be fully translated into a concrete purchase. If consumers can engage in an actual green behavior, their goals will be achieved. With regard to experimental research, studies conducted by Berger and Corbin (1992) and Lee and Holden (1999) indicated that when customers are better aware that their green behavior can help obtain their goals, the relationship between green intention and green behavior will become closer.

Likewise, Lockie et al. (2002) conducted a study on eating “green” in Australia and identified three factors that act as hindrances to sustainable food consumption including cost, availability and purchasing convenience. It is therefore recommended that businesses should offer various sales promotion activities which affect price sensitivity such as price discounts, consumer sales promotion, trade sales promotion to stimulate consumers to engage in consumption behaviors.

### **3. RESEARCH METHODS**

#### **3.1 Sample and sample size:**

Random sampling was employed, with participants aged 18 years and older who already engaged in actual consumption behavior. There were a number of 600 survey questionnaires distributed to participants in some supermarkets and street markets in Hanoi and Ho Chi Minh city. The number of valid responses collected was 468. The rate of responses from participants (who answered oral survey questionnaires read by students) was 78%.

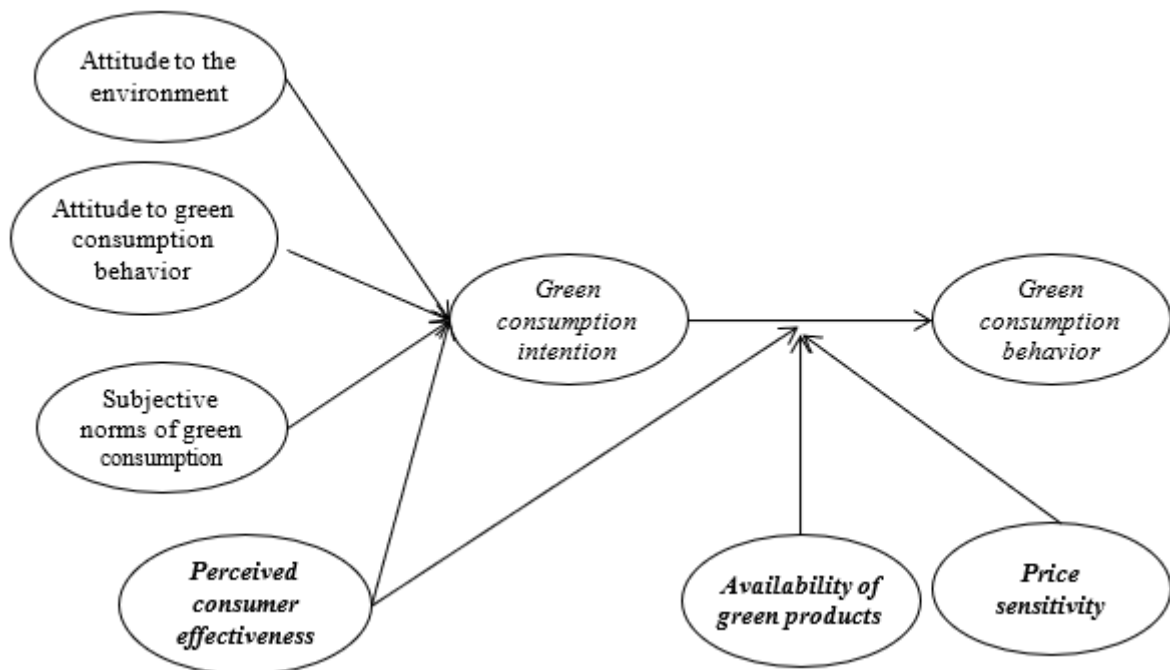
#### **3.2 Research framework and hypotheses**





This paper takes the viewpoint of Rylander and Allen (2001) and their Comprehensive Model of Environmentally Friendly Consumers and American Marketing Association. Specifically, their theory described three factors influencing the relationship between intention and green consumption behavior, including perceived consumer effectiveness, price sensitivity and product availability. In general, this framework highlights the determinants of the relationship between intention and green consumption behavior. It can also help identify the contexts or circumstances under which intention exerts more influence on green consumption behavior, that is, in which cases green intention can be fully translated into a concrete purchase.

The following diagram illustrates the research framework:



**Figure 1:** Proposed research framework

### 3. RESULTS AND DISCUSSION

Results from survey questionnaires revealed that consumers' intention and green behavior have improved significantly. It is reported that many consumers would buy green

products next month (mean = 3.93) or be willing to use green products as an alternative to the current ones (mean = 3.99), or be willing to pay more for green products.

**Table 1**  
Analysis of mean score of some factors

	N	Min	Max	Mean	Standard Deviation
1. Green intention	444	1.00	5.00	4.05	.770
2. Green consumption behavior	430	1.17	5.00	3.41	.861
3. Environmentally conscious	444	1.00	5.00	4.28	.735
4. Perceived consumer effectiveness	443	1.00	5.00	4.17	.632
5. Price sensitivity	447	1.00	5.00	3.40	.874
6. Product availability	443	1.33	5.00	3.61	.763
7. I only buy products from supermarkets	447	1.00	5.00	2.90	1.019
8. I often buy products from street markets and retail stores because they offer great convenience and reasonable prices	445	1.00	5.00	3.07	1.205
9. I almost buy products online	446	1.00	5.00	2.30	1.147
10. I try to buy green products even when my income is lower	444	1.00	5.00	3.47	.097
11. When I go shopping, I am influenced by my shopping companions	440	1.00	5.00	3.34	1.100
Valid N (listwise)	408				

Based on the analysis of the mean score of each questionnaire item by using SPSS Compute Variables (illustrated in Table 1), the current situation of green behavior of Vietnamese consumers is summarized as follows:

- Vietnamese consumers are slightly environmentally conscious, which was shown in the answers of 444 respondents, with the mean score at 4.40.
- With regard to the perceived consumer effectiveness, the mean score is 4.17, indicating the relatively high consciousness of respondents about environmental impacts on human life. To be more specific, Vietnamese consumers were well aware of the negative impacts of unsafe food on human health, the damaging effects of plastic bags on the environment, the useful role of energy-saving products.

- The results from survey questionnaires also revealed that businesses' strategies (such as consumer sales promotion, trade sales promotion, price discounts) were somewhat influential in consumers' choice (mean = 3.40).
- Concerning the question about the availability of green products (which is based on consumers' experience only, because sometimes green products are actually available but consumers are not aware of, they will think that the products are not available), many respondents agreed that green products were not widely available, or not widely sold in their neighborhood, or it was difficult for them to recognize real green products. The mean score for this item is 3.61, indicating the unavailability of green products.
- In terms of shopping habit, a large number of consumers were accustomed to buying products from supermarkets (mean = 2.90) but many others preferred buying products from street markets (mean = 3.07) and some customers started purchasing online.
- Regarding the statement of "I try to buy green products even when my income is lower", the mean score for those agreed is 3.47. In other words, Vietnamese consumers tend to be more willing to pay for green products, and they are greatly influenced by their shopping companions (mean = 3.34).

### 3.1. The relationship between intention and green consumption behavior

Statistical results showed that the KMO value is equal to  $0.85 > 0.6$ , indicating that the sampling is adequate and the factor analysis is appropriate for the data. Furthermore,  $\text{sig.} = .000 < 0.05$ , demonstrating a statistically significant relationship between variables.

**Table 2**  
KMO and Bartlett's Test Analysis

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.857
Approx. Chi-Square		2143.049
Bartlett's Test of Sphericity	Df	45
	Sig.	.000

**Table 3**  
Correlations between intention and green consumption behavior

		Intention	Behavior
Intention	Pearson correlation coefficient	1	.450**
	Sig. (2-tailed)		.000

Behavior	Number	444	431
	Pearson correlation coefficient	.450**	1
	Sig. (2-tailed)	.000	
	Number	431	435

\*\*. Correlation is significant at the 0.01 level (2-tailed).

The relationship between intention and green behavior of Vietnamese consumers is measured by Pearson correlation coefficient, also known as Pearson product – moment correlation coefficient. Because  $r$  is non-zero, there is a linear relationship between Vietnamese consumers' intention and their green behavior.

The fact that  $r = 0,45$  implies a positive and strong relationship between the two variables. It can be inferred that variable one (green behavior of Vietnamese consumers) can be increased by 0.45 unit when variable two (intention) increased by 1 unit. In this case, intention can be easily transformed into green consumption behavior.

### 3.2 Testing the impacts of different factors on the relationship between intention and green consumption behavior

Factor Analysis has shown that there are four independent groups of factors:

- Green consumption intention (YD)
- Perceived consumer effectiveness (NTHQ)
- Price sensitivity (ĐNCCG)
- Product availability (TSCSP)

In order to test the hypotheses in the research framework, the average value of indicators for each factor was calculated to create a representative variable for that factor. Particularly, to test the moderating relationship, independent variables were measured at their average value before multiplying so that the results can be most objective (Cohen Jacob et al., 2003). The variables were transformed by mean centering through using Transform function (Compute Variables) in SPSS, in which:

$$YD\_center = YD - \text{mean (of “intention”)}$$

$$QTMT\_center = QTMT - \text{mean (of “environmentally conscious”)}$$

$$NTHQ\_center = NTHQ - \text{mean (of “perceived consumer effectiveness”)}$$

$$ĐNCCG\_center = ĐNCCG - \text{mean (of “price sensitivity”)}$$

$$\text{TKSCSP\_center} = \text{TSCSP} - \text{mean (of "product availability")}$$

**Table 4.**

Linear regression analysis of factors influencing the relationship between intention and green consumption behavior

Framework	Unstandardized coefficient		Standard-ized coefficient	T	Sig.	Collinearity Statistics	
	Beta	Std. Error	Beta			Tolerance	VIF
(Constant)	3.414	.036		93.954	.000		
YD_center	.455	.051	.455	9.951	.000	.852	1.173
TKSCSP_center	-.054	.049	-.054	-1.238	.216	.927	1.079
NTHQ_center	.085	.070	.085	1.708	.088	.726	1.378
ĐNCCG_center	-.067	.043	-.067	-1.541	.124	.950	1.053
(Constant)	.377	.037		91.079	.000		
YDxNTHQ	.134	.068	.134	2.138	.002	.439	1.277
YDxTKSCSP	-.070	.061	-.070	-1.227	.003	.716	1.397
YDxĐNCCG	-.015	.057	-.015	-.298	.766	.676	1.478

a. Dependent Variable: Consumption behavior (Hanhvitieudung)

The first part of the table shows that only independent variable does influence the green consumption behavior. The results of sig. coefficient less than 0.05 and Beta coefficient equal to 0.455 indicate that there is a strong relationship between intention and green consumption behavior. In other words, consumers' intention has positive influence on their green behavior. When intention increases by 1 unit, behavior will increase by 0.45 unit.

In the second part of the table covering the impacts of three factors (Perceived consumer effectiveness, price sensitivity and product availability), it is shown that the multiplication of "intention" and perceived consumer effectiveness (YD x NTHQ) and the multiplication of "intention" and "product unavailability" (YD x TKSCSP) both created variables that have statistical significance. In other words, the two variables of "perceived consumer effectiveness"

and “the unavailability of green products” do influence the relationship between intention and green consumption behavior.

With the Beta coefficient equal to  $0.134 > 0$ , it can be concluded that the perceived consumer effectiveness may strengthen the relationship between intention and green consumption behavior. Once consumers are fully aware of the effectiveness of their green behavior, their intention can be easily transformed into concrete purchases.

In case the Beta coefficient value is negative, it can be concluded that the unavailability of green products may weaken the relationship between intention and green behavior.

In other words, given the unavailability of green products, consumers' behavior will be hindered even when they have green intention. However, whether price sensitivity influences the relationship between intention and behavior was not tested in the current study because the sig. coefficient of this factor was higher than 0.05.

Statistical analysis has shown that there is a certain gap between intention and green consumption behavior. In particular, this study revealed at least two moderating factors that can help boosting the relationship between intention and green consumption behavior. First, the availability of green products can act as a trigger to transform customers' intention into green behavior. In other words, the more available the green products are, the more likely customers engage in actual green behavior. Second, the perceived consumer effectiveness can act as a controlling factor of consumers' green behavior. That is, the better consumers are aware of the effectiveness of the outcomes, the more likely they turn their intention into green behavior.

The testing of the linear regression model has indicated that the perceived customer effectiveness can influence the relationship between intention and green behavior. It means that when customers are fully aware of how their green behavior can positively influence their own life and the society, the effect of their intention on green behavior will be stronger.

#### **4. CONCLUSION**

Innovation for Green Future for the next generation is slogan of the Vietnamese Government. The policy to raise green consumption has been launched with relevant laws and sublaws. However, consumers have green intention but do not take green consumption

behavior. The decisive factors influencing intention as proposed in the Theory of Reasoned Action including attitude, subjective norms and perceived behavioral control, which were well illustrated in various studies on green consumption (Wu Shwu-Ing and Jia-Yi Chen, 2014). Furthermore, the difference between consumers' attitude towards the environment in general and attitude towards green consumption was investigated in the literature (Tan Booi-Chen, 2011). In the current study, the relationship between customers' attitude to the environment, to green consumption and subjective norms and green intention was tested although no specific hypothesis was made. To increase the reliability of the testing results, a number of controlling variables to green intention and green behavior such as gender and income were also included.

It was revealed that the perceived behavioral control and the availability/ unavailability of green products did influence the relationship between intention and green consumption behavior. To be more specific, the perceived behavior control may strengthen the effect of intention on green behavior and the unavailability of green products may weaken such relationship. The current study did not examine the impact of price sensitivity on the relationship between intention and green behavior of Vietnamese consumers. It can be explained that when consumers have intention to buy something (in this case, they understand that green products are more expensive), sales promotion strategies from businesses may not greatly influence their transformation from intention to actual behavior.

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