

A STUDY ON IMPACTS OF THE CONSUMER KNOWLEDGE AND THE PERCEIVED CONSUMER EFFECTIVENESS ON THE GREEN PURCHASE BEHAVIOR BY USING THE THEORY OF PLANNED BEHAVIOR

● NGUYEN MINH TUAN - TON NU BAO THU

ABSTRACT:

By using the Theory of Planned Behavior, this study is to get a thorough understanding of consumer knowledge and perceived consumer effectiveness toward the purchase of green products. Based on the Extended Theory of Planned Behavior, the study finds out that the consumer knowledge and the perceived consumer effectiveness have significant impacts on consumers' attitudes, subjective norms, and perceived behavioral control, thereby affecting the purchase intention, and eventually, the purchase of green products. This study's findings are expected to help policymakers, educators, and industry experts improve both the environment and the economy by developing strategies to improve communication with customers and promote desired consumption behavior.

Keywords: consumer knowledge, perceived consumer effectiveness, theory of planned behavior, green purchase intention, green purchase behavior, green products.

1. Introduction

Green products are environmentally friendly or sustainable ones, which are not harmful to the ecosystem or natural resources and may be recycled or preserved (Kim et al., 2013). Green consumption is growing popular as the more and more educated people become aware of their

responsibilities to preserve the natural environment. Individuals are reducing their carbon footprints by engaging in environmentally beneficial actions such as purchasing ecologically friendly items. Green consumption delivers the combined benefits of improved wellbeing and the ability to improve environmental sustainability

(Leonidou et al., 2013). Many global businesses are concentrating on green marketing and making regular attempts to develop green goods to meet customers' evolving demands.

In the early 1960s and 1970s, Western nations recognized the importance of environmental protection. As a result, the majority of consumer green behavior research has concentrated on industrialized Western nations. Green consumerism is gradually growing in developing countries because fast industrialization has caused environmental hazards which have resulted in many health issues. Consequently, it is critical to investigate customer intention and behavior regarding green products in developing economies. In this context, the current study attempts to investigate the green purchase intention and behavior of Vietnamese customers using the theory of planned behavior (TPB) (Ajzen, 1991).

2. Literature review

2.1. Theory of Planned Behavior (TPB)

The theory of planned behavior is widely regarded as one of the most helpful models for analyzing people activity in a variety of contexts. It has been used in research on organic food purchasing behavior (Sparks and Shepherd, 1992) and on the intents to purchase ecologically friendly products (Kalafatis et al., 1999). As a result, the TPB model is appropriate for this investigation.

2.1.1. Attitude

An individual's favorable or negative appraisal of the performance of a certain act is referred to as their attitude (Ajzen, 1991). In the context of green consumption, attitude refers to consumers' feelings and perceptions about the use of green products, which influence their consumption behavior (Ho et al., 2018).

In studies from various countries, attitude toward green purchase behavior has been found to be positively related to green purchase intention across a wide selection of environmentally

friendly goods and services, including organic food products (Zhou et al., 2013), green hotels (Han and Yoon, 2015), beverages (Van Birgelen et al., 2009), and tourism (Barber et al., 2010).

2.1.2. Subjective norm

Subjective norm is a social component that relates to perceived social pressure to perform or not perform a specific activity (Ajzen, 1991). The stronger tie of the related people to the consumer, the greater their influence on his/her purchasing decision. In addition, if a consumer has more confidence in related people, his/her purchasing propensity will be affected (Ho et al., 2018). Prior research has shown that the positive perception of close people toward green products, such as friends, family, peers, and relatives, has a considerable influence on an individual's green purchase intention (Teng et al., 2015).

2.1.3. Perceived Behavioral Control (PBC)

Perceived behavioral control is defined as the sense of the ease or difficulty of doing a specific act (Ajzen, 1991). TPB highlights the significance of PBC in anticipating intents and behaviors when the relevant activity is outside an individual's volitional control. In the context of green consumption, PBC describes consumers' perceptions of the availability of needed resources, barriers, and ease of green consumption (Ho et al., 2018).

PBC has been discovered as being among the most powerful predictors of human intentions and behaviors across a wide range of green goods and services, including organic food (Thgersen, 2007) and green hotels (Teng et al., 2015).

2.1.4. Purchase Intention and Purchase Behavior

The phrase "green purchasing" (also called "eco-purchasing") refers to the buying of eco-friendly goods and services. It is the assessment of environmental concerns, price and efficiency at the same time when making purchasing decisions, so as to reduce the effect on health and environment. This evaluation can target one or all

negative environmental consequences over their whole product lifecycle (including manufacturing, distribution, usage, recycling, and disposal) (Le, 2007). Yadav and Pathak (2017) revealed confirmation on a favorable relationship between behavioral intentions and green purchasing behavior in the context of green products.

2.2. Consumer Knowledge

Consumer knowledge is an important aspect that affects all stages of the consumer decision-making process. Consumer knowledge helps guide individuals toward sustainability issues because knowledge represents a human-being's cognitive elements. Hence, it may contribute to long-term adjustments in consumers' attitudes and behaviors (Bator & Cialdini, 2000). It is the reason why this study chose to include consumer information while applying the TPB theory.

2.3. Perceived Consumer Effectiveness (PCE)

PCE is a measure of a persons belief in individual consumers' power to influence natural resource concerns (Roberts, 1996). The more customers believe they can make a difference in eliminating pollution, the more they think about the social effect of their purchasing decisions (Roberts, 1996). PCE was also found to be favorably linked with customers' propensity to purchase organic food (Vermeir and Verbeke, 2008).

2.4. Hypotheses and model

Based on the models of Ajzen (1991) and Kang et al. (2013), authors complied the following model.

3. Methodology

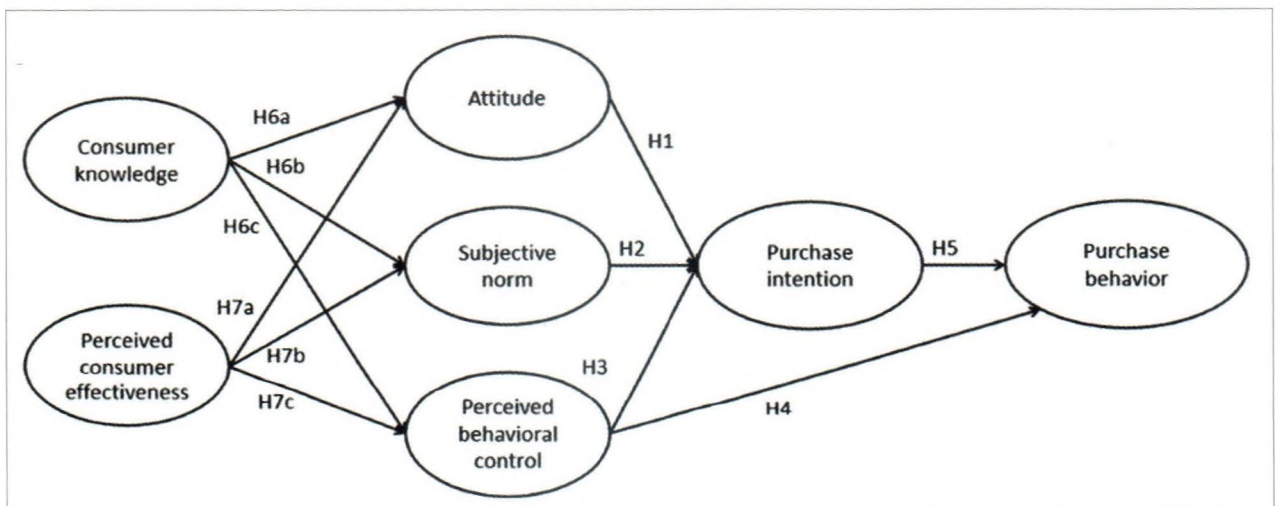
3.1. Measurement scales

Six items from Chan and Lau (2002) were used to examine people's attitudes about green products. To measure subjective norm, two questions adapted from Kim and Han (2010) were employed. PBC was assessed using a three-item measure adapted from Chen and Chang (2012). A three-item scale was developed from Kim et al. (2013) to measure purchase intention. A three-item scale derived from Wan et al. (2012) was used to examine purchase behavior. Six items designed by Kang et al. (2013) were used to measure consumer knowledge (2013). Four items adapted from Roberts' study (1996) were used to evaluate PCE.

Purchase intention and purchase behavior are not usually measured simultaneously. However, to assess these factors at the same time, a cross-sectional survey can be used, which will be discussed more in limitations. At the survey time, consumers should have purchased green products recently.

All measurement items use a five-point Likert

Figure 1: Theoretical framework employed for this study



scale ranging from 1 (strongly disagree) to 5 (strongly agree).

3.2. Data collection

The convenience sampling method was used to obtain data via an online questionnaire survey approach. Before collecting data, a pilot test was done to ensure that the questions were intelligible and accurate from the consumers viewpoint. Wordings in the questionnaire were fine-tuned in response to suggestions from the pilot survey. The study's target audience consisted of Vietnamese consumers aged 18 and above. Kline (2011) suggested ten samples for each item in terms of sample size. The research has a total of 27 measurement items therefore, the final intended sample should be of at least 270.

3.3. Data analysis

SPSS 20 and AMOS 24 were used for data analysis. A two-step model was employed: measurement model (to conduct confirmatory factor analysis and assess the reliability and validity of items and constructs) and structural model (for analyzing the model fit and hypothesis testing).

4. Findings and results

4.1. Demographic information

The number of valid respondents is 272, which is more than the required 270. The majority of respondents are female (61.8%), in the age of 18-24 (74.6%), and with tertiary degrees (90.8%).

4.2. Data analysis

4.2.1. *Measurement model: Reliability and Validity testing*

4.2.1.1. Reliability testing

Cronbach's alpha estimates varied from 0.730 to 0.908, which is above the suggested 0.7 criterion, and all the total correlation coefficients were greater than 0.3, indicating that all measurement scales were reliable.

4.2.1.2. Exploratory Factor Analysis (EFA)

A seven-factor model was proposed based on the EFA results. Because of their low factor loading (< 0.5), two items, PI3 and PBC1 were

removed. The total variance extracted of the final solution is 65.5 percent ($> 50\%$) with seven factors measured by 25 items. The KMO of 0.872 (between 0.5 and 1) and the Sig. of Bartlett test of 0.00 (less than 0.05) indicate sufficient conditions to run EFA. Table 2 displays all EFA loadings between 0.515 and 0.955.

4.2.1.3. Confirmatory Factor Analysis (CFA)

The measurement has a strong model fit if $CMIN/df \leq 5$, $CFI \geq 0.8$, $RMSEA \leq 0.08$, and $GFI \geq 0.8$.

CFA results show that $CMIN/df = 2.421$; $CFI = 0.910$; $RMSEA = 0.072$; $GFI = 0.846$. Therefore, the measurement had a strong model fit.

4.2.2. *Structural Model: Model fit and Hypotheses testing*

4.2.2.1. Structural Equation Modeling (SEM)

The structural fit of the model was satisfactory ($CMIN/df = 2.765 \leq 5$; $CFI = 0.823 \geq 0.8$; $GFI = 0.884 \geq 0.8$; $RMSEA = 0.081$). Even though $RMSEA$ is greater than 0.08, this value is said to suggest a fit that is fine (Cangur & Ercan, 2015).

The hypothesis testing was summarized in Table 1:

5. Discussions and implications

The current study employed TPB and aimed to include important constructs such as consumer knowledge and PCE into the TPB model to better understand consumer behavior toward green products. In addition, all predictor constructs had a significant effect on customers' intention to purchase green products, which impacts their purchase behavior. However, since purchase behavior was measured in the present time, the same with purchase intention instead of the future time, the correlation between the two factors is only around 0.4, which is quite moderate. The findings conform to previous studies (e.g., Han et al., 2010) on consumer intention to visit green hotels. The findings thoroughly validated the function of TPB factors in determining customer intention and behavior toward green products. This demonstrates TPB's usefulness in assessing

Table 1. Path relationship between the constructs

| Path | β coefficient | β -value | p-value | Relationship |
|-----------------|---------------------|----------------|---------|---------------|
| ATT → PI (H1) | 0.441 | 6.952 | 0.000 | Supported |
| SN → PI (H2) | 0.130 | 2.092 | 0.036 | Supported |
| PBC → PI (H3) | 0.176 | 2.713 | 0.007 | Supported |
| PBC → PB (H4) | 0.349 | 5.041 | 0.000 | Supported |
| PI → PB (H5) | 0.396 | 5.777 | 0.000 | Supported |
| CK → ATT (H6a) | 0.074 | 1.189 | 0.234 | Not supported |
| CK → SN (H6b) | 0.279 | 3.934 | 0.000 | Supported |
| CK → PBC (H6c) | 0.492 | 7.331 | 0.000 | Supported |
| PCE → ATT (H7a) | 0.590 | 8.445 | 0.000 | Supported |
| PCE → SN (H7b) | 0.207 | 2.894 | 0.004 | Supported |
| PCE → PBC (H7c) | 0.241 | 3.638 | 0.000 | Supported |

customer intention and behavior to purchase green items in the context of Vietnam.

Among the additional variables, PCE significantly influences attitude, subjective norm, PBC, and consequently have a positive effect on consumer green purchase intention. This result conforms to the findings of previous studies (e.g., Kang et al., 2013). Although consumer knowledge has a considerable impact on subjective norm and PBC, it has no effect on attitude which contradicts to the findings of Smith and Paladino (2010), but is in line with earlier research (e.g., Wolsink, 2007).

In addition, regarding the indirect impacts, this study sheds light on the socio-psychological processes through which PCE, consumer knowledge, attitude, subjective norm, and PBC impact green purchase behavior through their influence on purchase intention. As a result, the analysis reveals the underlying dynamics of the link between the aforementioned factors.

Furthermore, this research can help marketers better understand customer intention to purchase

green products in Vietnam context. The attitude has the most direct influence on purchase intention among three TPB predictors. As a result, attempts should be made to shift customer attitude toward green products by projecting a positive picture of them through extensive advertisements showcasing their usage. Last but not least, because PBC appeared to be the second-best determinant of purchase intention and behavior, improving views of the simplicity with which green items may be bought may assist businesses in expanding their marketplace to cover eco-friendly products. Green marketers should aim to make eco-friendly items widely accessible to consumers with minimal effort. Because subjective norm also has a direct impact on purchase intention, policymakers should favorably shape societal perceptions of the utility of green products in minimizing carbon emission. Programs and commercials highlighting the environmental deterioration and people' contributions to improving environmental quality

may help to raise environmental awareness and concern that might lead to green consumption among these consumers.

6. Conclusions, limitations and recommendations for future research

The current study evaluates customer intention and behavior toward purchasing green items in Vietnam using TPB. The most important driver of customer green purchase intention is attitude toward green items, followed by PBC and subjective norm. In addition, the findings justify the addition of new factors in TPB, i.e., consumer knowledge and PCE. PCE, which has a strong influence on customer attitude, subjective norm, and PBC, demonstrates the importance of PCE in green product purchase. While having no effect on attitude, consumer knowledge shows a significant impact on subjective norm and PBC. Furthermore, regarding indirect impacts, this study provides insight on the socio-psychological structures through which PCE, customer awareness, attitude, subjective norm, and PBC impact green purchase behavior via their influence on purchase intention.

This study has certain shortcomings which should be addressed in future research. First, this research employs self-reported activity rather than actual behavior to measure customers' green purchasing behavior. Future research may look at real performance rather than self-reported

conduct by using cohort study. In addition, the current study assesses green products in general. Hence, future research may examine customer intentions and behavior in relation to specific types of green items. Moreover, the respondents' self-selection biases could be another drawback, as participants who are substantially more interested in the environment may have been encouraged to engage in the study. Future research may overcome this problem using a random sampling approach to provide a broader picture of consumers' green purchase behavior. Following that, this study attempted to construct a framework by extending the theory and improving the validity of the model testing. Considering the model's successful development, the next step for future research would be to focus on cross-cultural comparisons by using global data to analyze the differences or similarities of correlations, as well as the impact sizes of constructs in the framework for each nation. Furthermore, since demographic factors might have a major effect on the model's predicted correlations, future researchers may investigate the role of these social factors as moderators to acquire a better understanding of the nature of connections. Finally, future studies may consider adding additional factors such as perceived worth, personal norms, and environmental values ■

REFERENCES:

1. Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, 50(2), 179-211.
2. Barber, N., Taylor, D. C., Deale, C. S. (2010). Wine tourism, environmental concerns, and purchase intention. *Journal of Travel & Tourism Marketing*, 27(2), 146-165.
3. Bator, R., Cialdini, R. (2000). The application of persuasion theory to the development of effective proenvironmental public service announcements. *Journal of Social Issues*, 56(3), 527-542.
4. Cangur, S., Ercan, I. (2015). Comparison of model fit indices used in structural equation modeling under multivariate normality. *Journal of Modern Applied Statistical Methods*, 14(1), 14.

5. Chan, R. Y., Lau, L. B. (2002). Explaining green purchasing behavior: A cross-cultural study on American and Chinese consumers. *Journal of international consumer marketing*, 14(2-3), 9-40.
6. Han, H., Hsu, L. T. J., Sheu, C. (2010). Application of the theory of planned behavior to green hotel choice: Testing the effect of environmentally friendly activities. *Tourism management*, 31(3), 325-334.
7. Han, H., Kim, Y. (2010). An investigation of green hotel customers decision formation: Developing an extended model of the theory of planned behavior. *International journal of hospitality management*, 29(4), 659-668.
8. Ho, H. T., Nguyễn, V. N., Đỗ, P. L. (2018). Các nhân tố ảnh hưởng đến hành vi tiêu dùng xanh của người dân Nha Trang. *Tạp chí Quản lý Kinh tế Quốc tế*, 103, 1-19.
9. Kalafatis, S. P., Pollard, M., East, R., Tsogas, M. H. (1999). Green marketing and Ajzens theory of planned behavior: a cross-market examination. *Journal of consumer marketing*, 16(5), 441-460.
10. Kang, J., Liu, C., Kim, S. H. (2013). Environmentally sustainable textile and apparel consumption: the role of consumer knowledge, perceived consumer effectiveness and perceived personal relevance. *International Journal of consumer studies*, 37(4), 442-452.
11. Kim, Y., Han, H. (2010). Intention to pay conventional-hotel prices at a green hotel-a modification of the theory of planned behavior. *Journal of Sustainable Tourism*, 18(8), 997-1014.
12. Kim, Y. J., Njite, D., Hancer, M. (2013). Anticipated emotion in consumers intentions to select eco-friendly restaurants: Augmenting the theory of planned behavior. *International journal of hospitality management*, 34, 255-262.
13. Kline, R. B. (2011). *Principles and practice of structural equation modeling (3. Baski)*. New York, NY: Guilford.
14. Le, H. L. (2007). Lồng ghép “Mua sắm xanh” vào chương trình dân nhân sinh thái. *Tạp chí Bảo vệ Môi trường*, 11.
15. Leonidou, C. N., Katsikeas, C. S., & Morgan, N. A. (2013). “Greening” the marketing mix: do firms do it and does it pay off? *Journal of the Academy of Marketing Science*, 41(2), 151-170.
16. Roberts, J. A. (1996). Green consumers in the 1990s: profile and implications for advertising. *Journal of business research*, 36(3), 217-231.
17. Smith, S., Paladino, A. (2010). Eating clean and green? Investigating consumer motivations towards the purchase of organic food. *Australasian Marketing Journal (AMJ)*, 18(2), 93-104.
18. Sparks, P., Shepherd, R. (1992). Self-identity and the theory of planned behavior: Assesing the role of identification with "green consumerism". *Social psychology quarterly*, 388-399.
19. Teng, Y. M., Wu, K. S., Liu, H. H. (2015). Integrating altruism and the theory of planned behavior to predict patronage intention of a green hotel. *Journal of Hospitality and Tourism Research*, 39(3), 299-315.
20. Thøgersen, J. (2007). Consumer decision-making with regard to organic food products, in Vaz, T.D.N., Nijkamp, P. and Rastoin, J.L. (Eds), *Traditional Food Production Facing Sustainability: A European Challenge*, Ashgate, Farnham, 173-192.
21. Van Birgelen, M., Semeijn, J., Keicher, M. (2009). Packaging and proenvironmental consumption behavior: Investigating purchase and disposal decisions for beverages. *Environment and Behavior*, 41(1), 125-146.
22. Vermeir, I., Verbeke, W. (2008). Sustainable food consumption among young adults in Belgium: Theory of planned behavior and the role of confidence and values. *Ecological economics*, 64(3), 542-553.
23. Wolsink, M. (2007). Wind power implementation: the nature of public attitudes: equity and fairness instead of backyard motives. *Renewable and sustainable energy reviews*, 11(6), 1188-1207.

24. Yadav, R., Pathak, G. S. (2017). Determinants of consumers' green purchase behavior in a developing nation: Applying and extending the theory of planned behavior. *Ecological economics*, 134, 114-122.
25. Zhou, Y., Thøgersen, J., Ruan, Y., Huang, G. (2013). The moderating role of human values in planned behavior: the case of Chinese consumers' intention to buy organic food. *Journal of Consumer Marketing*, 30(4).

Received date: July 10, 2022

Reviewed date: August 5, 2022

Accepted date: August 15, 2022

Authors information:

1. NGUYEN MINH TUAN¹

2. TON NU BAO THU¹

¹School of Business

International University, Vietnam National University - Ho Chi Minh City

NGHIÊN CỨU VỀ TÁC ĐỘNG CỦA KIẾN THỨC VÀ HIỆU QUẢ MÀ NGƯỜI TIÊU DÙNG CẢM NHẬN ĐƯỢC LÊN HÀNH VI MUA SẮM SẢN PHẨM XANH THÔNG QUA VIỆC SỬ DỤNG LÝ THUYẾT HÀNH VI CÓ KẾ HOẠCH

● NGUYỄN MINH TUẤN

● TÔN NỮ BẢO THƯ

Khoa Quản trị Kinh doanh

Trường Đại học Quốc tế - Đại học Quốc gia Thành phố Hồ Chí Minh

TÓM TẮT:

Sử dụng lý thuyết về hành vi có kế hoạch, mục đích của nghiên cứu này là để hiểu thấu đáo về kiến thức của người tiêu dùng và nhận thức hiệu quả của người tiêu dùng đối với việc mua sản phẩm xanh. Dựa trên một mô hình mở rộng về lý thuyết hành vi có kế hoạch, nghiên cứu đã cho thấy kiến thức của người tiêu dùng và mức độ hiệu quả mà người tiêu dùng cảm nhận được có tác động đáng kể đến thái độ của người tiêu dùng, các chuẩn mực chủ quan và kiểm soát hành vi nhận thức, do đó ảnh hưởng đến ý định mua và cuối cùng là hành vi mua các sản phẩm xanh. Kết quả nghiên cứu có thể giúp các nhà hoạch định chính sách, nhà giáo dục và các chuyên gia trong ngành cải thiện cả môi trường và nền kinh tế bằng cách phát triển các chiến lược để cải thiện giao tiếp với khách hàng và thúc đẩy hành vi tiêu dùng mong muốn.

Từ khóa: kiến thức của người tiêu dùng, hiệu quả người tiêu dùng cảm nhận được, lý thuyết hành vi có kế hoạch, ý định mua sắm xanh, hành vi mua sắm xanh, sản phẩm xanh.