

An investigation into the relationship between materialism and green purchase behavior in Vietnam and Taiwan

Materialism
and green
purchase
behavior

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Nguyen Thi Tuyet Mai

Faculty of Business Management, National Economics University, Hanoi, Vietnam

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Abstract

Purpose – The purpose of this paper is to investigate the impact of materialistic values on purchase intention (PI) toward green products among consumers in Vietnam and Taiwan, two Asian countries with different levels of economic development.

Design/methodology/approach – This research employs the extended theory of planned behavior (TPB) with an integration of materialism. To serve the purpose of this study, two consumer surveys were conducted in Hanoi (Vietnam) and Taipei (Taiwan). The structural equation modeling was employed to test the proposed model and hypotheses.

Findings – This study examined the impact of some antecedents of green PI among consumers in Vietnam and Taiwan, focusing on the indirect impact of materialistic values (through attitude). All five hypotheses received support from the Vietnam data, confirming the significant impacts of materialistic values (i.e. success and happiness) on attitude, and all three antecedents from the TPB model (i.e. attitude, subjective norms and perceived behavioral control) as positive predictors of green PI. For the Taiwan data, the findings were similar to those from the Vietnam data, except insignificant impact of success value on attitude toward buying green products.

Originality/value – This research is expected to contribute to the extant literature by enriching the knowledge of the interesting and important relationship between materialistic values and green purchase behavior among consumers in two Asian markets where, to the author's best understanding, only modest research effort has been given to explore this topic.

Keywords Vietnam, Materialism, Taiwan, Green purchase intention, Theory of planned behaviour

Paper type Research paper

1. Introduction

In the marketing field, studying green consumer behaviors has become an important topic that has attracted significant research from both scholars and practitioners (Narula and Desore, 2016; Nguyen *et al.*, 2019). Due to such environmental issues as climate change and serious pollution, there has been an irreversible shifting in consumer preference toward environmentally friendly consumption and behavior (Akenji, 2014), even in less developed countries (Chua *et al.*, 2016). In addition, it has been noted that green consumption may vary for different countries due to differences in terms of the development level and culture (Ko and Jin, 2017). Therefore, it is interesting and meaningful to examine the green consumption behavior in the context of Vietnam and Taiwan, two economies in Asia that may share some similarities in terms of culture but represent different levels of economic development.

With regard to antecedents of green product purchase, various factors have been examined in the literature. However, the research findings pertaining to factors influencing

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green purchase behavior are still inconsistent (Nguyen *et al.*, 2019). Among the antecedents, values have been considered to have a significant impact on environmental attitudes and behaviors. However, there is still a little research on the relationship between specific values and environmentally friendly behaviors (Gonzalez *et al.*, 2015; Zibenberg *et al.*, 2018). In addition, it is noted that the relationships between values and green purchase behavior is still unclear (Nguyen *et al.*, 2019).

Materialism is an important construct in marketing and the topic related to this construct has received extensive investigation in the literature (e.g. Richins and Dawson, 1992; Strizhakova and Coulter, 2013). Although materialism has frequently been associated with Western countries, past research has suggested that materialism exists also in less developed countries and it seems to be growing in the emerging markets while slowing down in the developed markets because many consumers in the developed countries are now moving toward more abstract and less materialistic goals (Burroughs and Rindfleisch, 2002). Taiwan is included in the advanced and high-income economies group, while Vietnam is an emerging economy in Asia. Many previous studies have examined the role of materialism in explaining consumer behaviors and much past research has indicated the negative side of materialism. The link between materialism and green purchase behavior has been explored in different contexts, using different approaches (i.e. materialism is treated as a single construct vs materialism being broken into different facets), and the findings are mixed and inconsistent (Segev *et al.*, 2015). It has been suggested that this relationship should be further investigated (Perera and Klein, 2011; Strizhakova and Coulter, 2013), especially with the use of the materialism concept unbundled into its facets (Segev *et al.*, 2015). Also, it is meaningful to examine the relationship in the context of Taiwan and Vietnam, two Asian economies with different levels of economic development, where the issues related to green consumption have received increasing and significant attention from relevant stakeholders albeit at different degrees.

The main purpose of this study is to examine the impact of an important value, materialism (i.e. three materialism's components) on green purchase behavior among Vietnamese and Taiwanese consumers. The theory of planned behavior (TPB) with the integration of materialistic values is employed as a theoretical framework for this study. The TPB has been well employed in the literature, including the environmental domain, in both developed and emerging markets (e.g. Chan, 2001; Ko and Jin, 2017; Nguyen *et al.*, 2019). The results of this research are expected to contribute to the literature by enriching our knowledge of the interesting and important relationship between materialistic values and green purchase behavior among consumers in two Asian markets where, to our best understanding, only modest research effort has been given to explore this topic. In this report, following the introduction section, theoretical background and hypotheses are presented. Next is the research methodology, followed by the research results. Finally, the research findings are discussed and the implications are provided.

2. Theoretical background and hypotheses

2.1 Green consumption and the research context

Green consumption has been studied in developed economies since the 1960s (Coleman *et al.*, 2011). In fact, psychological and perceptual environment-related concepts have become a traditional theme in environmental sociology and psychology. However, this topic has not caught adequate attention in marketing for a long time (Pickett *et al.*, 1993). Recently, studies of green consumption have seemed to regain a better momentum. Some marketing scholars have called for novel research related to environment-related and sustainable consumption (Prothero *et al.*, 2011). Thus, there has been more research deepening our knowledge about environment concerns, attitudes and environmentally friendly behaviors (e.g. Polonsky, 2011). A recent theme is a stream of research linking environmental concern issues with environmentally

friendly buying and consuming behaviors (e.g. Welsch and Kühling, 2009). Still, understanding different antecedents of green behaviors is necessary and important theoretically. In this research, green consumption can be understood as behaviors which are related to environmental and resource-related problems and motivated by both a desire to satisfy individual needs and a concern for the welfare of society in general (Antil, 1984). Although studies in the field may use different terms such as: socially responsible, ecologically conscious, environmentally responsible, environmentally friendly, pro-environmental, or green consumption, the common theme is a desirable consumption goal to minimize environmental consequences (Kim *et al.*, 2012). Green products can be any kinds which are produced either by minimizing used inputs; utilizing materials that are recycled and non-toxic or not related to experiment on animals or harmless to protected animals; using less energy for production; or having minimal or no packaging in use (Simon, 1995).

This study seeks to examine the role of an important and debatable antecedent of green purchase, materialism, using the TPB model as theoretical framework, using consumer data from two Asian economies, Vietnam and Taiwan. Taiwan is considered as a developed economy and green consumption in Taiwan has become a form of mainstream consumption culture (Lu *et al.*, 2015). In Taiwan, both the Government and citizens have the understanding and knowledge of green issues and sustainable practices (Rahimah *et al.*, 2018). The research topic related to green consumption in Taiwan has attracted an increasing research interest from scholars. A recent study by Rahimah *et al.* (2018) examined the antecedents of green purchase behavior, focusing on the role of consumers' anxiety of death and individual social responsibility, why Lu *et al.* (2015) examined the impact of consumer personality traits and ethical beliefs. Some other studies have focused on some specific green products such as organic food (e.g. Chang and Chang, 2017), and specific green consumption behavior such as recycling or "Bring Your Own Shopping Bag" (Chang and Chou, 2018). Some research effort has been given to investigate the issue in the cross-cultural context. For example, Polonsky *et al.* (2014) examined the relationship between materialism and environmental behaviors across for Asian economies including China, Hong Kong, Taiwan and Singapore. However, to our best knowledge, in Taiwan it seems none past research has examined the relationship between materialistic values and consumer attitude in the context of green consumption, especially under the framework of the TPB model.

On the other hand, Vietnam is a transitional and emerging economy in Southeast Asia. It is considered a fast growing and promising consumer market with population of more than 95m people. Similar to many other developing countries, green consumption and green products are still relatively new and emerging concepts in Vietnam (Nguyen *et al.*, 2019). These concepts have been gaining attention from scholars and practitioners (e.g. Le *et al.*, 2019; Nguyen *et al.*, 2019). In business practice, for instance, a project to "greenly" transform the textile and apparel industry into a more sustainable one has been jointly carried out by The Vietnam Textile and Apparel Association and World Wildlife Fund for the period 2018–2020. In retailing field, Vinmart (a retail chain belonging to Vingroup, the biggest private group in Vietnam) has implemented many activities to promote green products and guide consumers toward engaging in pro-environmental consumption.

2.2 Factors influencing green purchase intention (PI) – the antecedents from the TPB model

The TPB (Ajzen, 1991) is a well-researched model that has been proved successful in predicting and explaining behaviors across a variety of domains. In the environmental field, the TPB has been well employed in the literature (e.g. Chan, 2001; Ko and Jin, 2017; Nguyen *et al.*, 2019).

Under the TPB, behavioral intention construct is at the core of the model that plays the role as a powerful predictor of the behavior (Ajzen, 2011). In this study, we focus on explaining the consumers' PI, rather than the behavior. The TPB indicate three important

antecedents of behavioral intention, including attitude toward the behavior, subjective norms (SNs) and the perceived behavioral control (PBC) (Ajzen, 1991). On the basis of TPB, in this study, attitude (ATT) refers to the consumer's positive or negative evaluation of buying green products; SN can be defined as the perceived social pressure that encourages one to engage in purchase of green products; and, finally, PBC refers to the difficulty or ease perceived by an individual to perform the purchase of green products.

Previous studies have provided empirical evidence for supporting the impact of the antecedents from the TPB on PI with regard to environmentally friendly products (e.g. Cowan and Kinley, 2014; Diamantopoulos *et al.*, 2003; Ko and Jin, 2017; Wang, 2014). However, the impact magnitudes of the three antecedents from the TPB have been inconsistent and dependent on the specific research context. In this study, we re-test the relationships between three important factors of the TPB and PI toward green products among consumers in the context of Taiwan and Vietnam, two economies in Asia representing different levels of economic development. We expect to see the similar findings pertaining to the significantly positive impact of these antecedents on PI. Therefore, the following set of hypotheses is presented:

- H1. The consumer attitude toward green purchase is positively related to green PI for both Vietnamese and Taiwanese consumers.
- H2. The consumer SN toward green purchase is positively related to green PI for both Vietnamese and Taiwanese consumers.
- H3. The consumer PBC toward green purchase is positively related to green PI for both Vietnamese and Taiwanese consumers.

2.3 Materialistic values: indirect antecedents of PI toward green products

In consumer research, previous studies have sought to extend the TPB model by adding the new variables with the purpose of understanding better the behavior in the specific research context (Joshi and Rahman, 2016; Nguyen and Nguyen, 2017). In the field of green consumption, materialism has been considered as an important and promising factor influencing the purchase behavior. Therefore, this construct is integrated into our research model.

In the literature, materialism has been viewed as a personality trait (e.g. Belk, 1985), and as a consumer value (e.g. Richins and Dawson, 1992). According to Richins and Dawson (1992, p. 308), materialism is defined as a "set of centrally held beliefs about the importance of possessions in one's life." They identified three important belief domains of materialism, including possession-defined success (SUC): the extent to which one uses possessions as indicators of success and achievement in life; centrality of acquisition (CEN): the extent to which one places possession acquisition at the center of one's life; and acquisitions in pursuit of happiness (HAPPI): the belief that possessions are essential to satisfaction and well-being in life. In the present study, materialism is viewed as a consumer value and three components of materialism are treated as separate variables (Nguyen and Tambyah, 2011).

The negative side of materialism associated with pro-environmental attitude and behavior has been noted in the context of both developed and developing countries (e.g. Kilbourne and Pickett, 2008; Lu and Lu, 2010; Segev *et al.*, 2015). Materialistic values have been considered as negative ones and are closely related to self-interested values. Materialists, therefore, tend to be less concerned with the environment and are more likely to be driven by acquiring material possessions for themselves. This may be at the expense of the common good of the environment (Richins and Dawson, 1992; Segev *et al.*, 2015). Previous studies have provided some empirical evidence regarding the negative impact of materialism on environmentally responsible behaviors (Brown and Kasser, 2005; Good, 2007; Kilbourne and Pickett, 2008; Richins and Dawson, 1992). In the context of Taiwan, past research has suggested that

materialism is negatively related to environmental concern (Polonsky *et al.*, 2014). In our study, it is expected that those Taiwanese consumers holding high level of materialistic values will express less favorable attitude toward buying green products.

On the other hand, past research also pointed out that the negative relationship between materialism and green behaviors could not be definitely confirmed due to issues related to measurement and definitions in use (Segev *et al.*, 2015). In some emerging economies, prior research even found a positive relationship, especially for groups of global-cultural identified individuals (Strizhakova and Coulter, 2013). They speculated that with the marketing strategies implemented by multinationals entering the economies, both concepts of materialism and environmentally friendly behaviors now can be reconciled. It has been suggested that depending on a specific context, a particular component of materialism may be more dominant and it is associated with particular antecedents and consequences (Segev *et al.*, 2015). In the context of Vietnam, an Asian emerging economy, among three facets of materialism, the status component (i.e. SUC) may be more apparent and strongly associated with green purchase. Those consumers holding a high level of success value may demonstrate greater concern for self-status, and they may view many green products such as organic food or green fashion apparels as signs of success (Ogle *et al.*, 2014) since these green products general cost more and are often associated with the image of something new, trendy, modern and unique. The products can help consumers publically express the self as being trendy, knowledgeable and successful in life, and improve their prestige of being caring and altruistic. In our study, it is expected that SUC is a positive predictor of the ATT toward purchase of green products for Vietnamese consumers.

Vietnam and Taiwan are different contexts in terms of levels of economic development and levels of consumer materialistic values. In addition to some similarities, we expect to see the impact of three components of materialism on ATT differently in some extent for Vietnamese and Taiwanese consumers. Based on the above discussion, the following hypotheses are presented:

- H4a.* Success component of materialism (SUC) is negatively related to the Taiwanese consumer attitude toward green purchase while it is positively related to ATT for Vietnamese consumers.
- H4b.* Centrality component of materialism (CEN) is negatively related to the attitude toward green purchase for both Taiwanese and Vietnamese consumers.
- H4c.* Happiness component of materialism (HAPPI) is negatively related to the attitude toward green purchase for both Taiwanese and Vietnamese consumers.

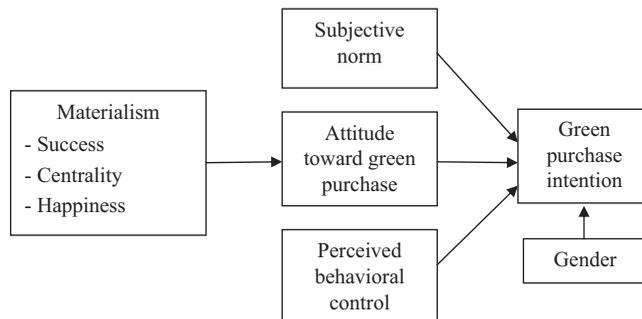
Based on suggestions from previous studies regarding the impact of some demographic variables on green PI such as gender (Wang, 2014), we include gender as a control variable in our model. The proposed conceptual framework is presented in Figure 1.

3. Research methodology

3.1 Sample and data collection

To test the research model and hypotheses, two data sets were collected from urban Vietnam and Taiwan. Specifically, the data set in Vietnam was collected in Hanoi, the capital of Vietnam. It has been suggested that selection of Hanoi for data collection is appropriate and can ensure the necessary conditions for the occurrence of green consumption (e.g. significant number of consumers with higher level of environmental knowledge, higher living standards and the availability of green products in the market) (Nguyen *et al.*, 2019). The convenience sampling technique was used to collect data. The final sample size included 402 respondents. In the sample, there were more females (56.7 percent) than males (43.3 percent). The respondents' age ranged from 18 to 70 with the age average of 30. More than 50 percent of respondents held bachelor degrees or above. The sample covers a wide range of occupations and income levels.

Figure 1.
Conceptual framework



In Taiwan, data were collected in three biggest Carrefour hypermarkets in Taipei, the capital of Taiwan. In this study, quota sampling technique was applied with the main criteria for selecting respondents including gender and age (Department of Civil Affairs, Taipei City Government, 2019). Eventually, 264 valid questionnaires were used for final analysis. In Taiwan sample, there were more females (52.65 percent) than males (47.35 percent). The sample covered the range of ages from 20 to 64 with the age average of 39. With regard to education level, the sample included more than 73 percent of college/university and above.

3.2 Measures and questionnaire development

All the constructs in this study were measured by the scales which have been established in the literature. Specifically, the three-item scale measuring PI was adapted from Chan (2001) (e.g. "I will consider buying less polluted products"). The scale measuring ATT, SN and PBC were based on Ajzen (1991) and modified from Chang (1998), and each includes three items. The examples of items measuring ATT, SN and PBC include "purchase of green products is a smart choice," "my family and friends would approve of my purchasing green products" and "I meet no difficulties in purchasing green products," respectively. The nine-item scale measuring three components of materialism, a short version scale of Richins and Dawson (1992), was adopted for this study including three items measuring SUC, three items measuring CEN and three items measuring HAPPI (Richins, 2004; see Kilbourne and Pickett, 2008 as well). Some examples of items measuring SUC, CEN and HAPPI are "the things I own say a lot about how well I am doing in life," "buying things gives me a lot of pleasure" and "I would be happier if I could afford to buy more things," respectively. All the scale items are scored on a seven-point Likert-type format ranging from strongly disagree (1) to strongly agree (7).

In this study, the questionnaire was developed including all the scale items measuring seven constructs in the research model. In addition, demographic questions such as gender, age, education level, marital status and income were included at the end of the questionnaire. The definition of green products was provided at the beginning of the questionnaire to ensure the common understanding among respondents. All the scale items originally in English were first translated into Mandarin (for the questionnaire used in Taiwan) and Vietnamese (for use in Vietnam) by bilingual persons and then were translated back into English by another one, following the back-and-forth translation process. The translated versions and the original one in English were carefully checked by an English-fluent scholar for necessary adjustment.

4. Research results

For most the scales in our research model, except materialism, the scale validity and reliability first were assessed through performing confirmatory factor analysis (CFA) and Cronbach's α . Despite extensive use in the USA, the property of Richins and Dawson's

materialism scale has been in question within cross-cultural research (Polonsky *et al.*, 2014). Therefore, both exploratory factor analysis (EFA) and CFA were performed on the materialism scale. After scale assessment, structural equation modeling (SEM) was employed to test the hypothesized model and hypotheses.

4.1 Scale assessment

To assess the property of the materialism scale, we first conducted EFA and Cronbach's α analysis. The results of EFA analysis did not support the three-factor structure (i.e. SUC, CEN and HAPPI) in both Vietnam and Taiwan sample. The Cronbach's α for CEN scale was far below the accepted level of reliability in both samples. The findings were similar to those from a cross-cultural study by Polonsky *et al.* (2014), in which the two-factor structure of materialism was used in the final analysis (i.e. success and happiness dimensions). In our study, we also used the two dimensions of the materialism scale, SUC and HAPPI for analysis.

In order to assess the measurement validity, the full measurement model was analyzed. The initial measurement model was constructed including all the scale items as indicator variables. During the process of conducting CFA, one item measuring SN in Vietnam sample and one item measuring HAPPI in Taiwan sample were dropped due to several undesirable values of standardized residuals associated with them (i.e. the values were larger than 2.5; Hair *et al.*, 2014). As indicated in Table I, the results of CFA, using AMOS21 software, demonstrated a good level of fit for both Vietnam and Taiwan samples. All *t*-tests of the observed variables were significant at the 0.001 level.

The Cronbach's α was calculated for each scale, ranging from 0.69 (for PBC) to 0.90 (for ATT) for Vietnam sample, and from 0.84 (for SUC) to 0.95 (for ATT) for Taiwan sample. These results demonstrated a satisfactory level of reliability with coefficient α s exceeding the cut-off value of 0.70 (Hair *et al.*, 2014), except PBC was a bit lower than 0.70 for Vietnam sample (α was 0.69).

In addition, we also reassessed the scale reliability after confirmatory analyses following the recommendation by Gerbing and Anderson (1988). The estimated loadings for each indicator were examined, and composite reliability (CR) and average variance extracted (AVE) were assessed (cf. Fornell and Larcker, 1981). The results showed that all factor loadings were significant at $p < 0.01$. All the CRs and AVEs were above the cut-off values of 0.70 and 0.50, respectively (Hair *et al.*, 2014) for both Vietnam and Taiwan samples. The lowest CR of 0.75 and the lowest AVE of 0.51 were associated with SUC for Vietnam sample, and the lowest CR of 0.77 and the lowest AVE of 0.64 were associated with HAPPI for Taiwan sample.

4.2 The structural equation model and hypothesis testing

Correlations among the constructs. Before testing the hypotheses, we checked correlations among the constructs used in this study. The results showed no serious multicollinearity problem. In Taiwan sample, however, the correlation between SUC and HAPPI was relatively high with an *r*-value of larger than 0.70. We ran discriminant validity test using the Fornell–Larcker criterion (Fornell and Larcker, 1981; Hair *et al.*, 2014). Specifically, the discriminant validity is established if the square root of the AVE of each construct is larger

Fit index	CMIN/df	<i>p</i> -value	GFI	CFI	TLI	RMSEA
Vietnam sample	2.211	< 0.01	0.934	0.953	0.937	0.055
Taiwan sample	2.293	< 0.01	0.898	0.961	0.948	0.070

Table I.
The results of
confirmatory factor
analysis

than its highest correlation with any other constructs. As indicated in Table II, the results confirmed the discriminant validity of all the constructs in the model.

Structural path analysis. The results of the structural equation analysis indicated that the model achieved a good level of fit for both Vietnam and Taiwan samples: for Vietnam sample: $\chi^2(118) = 357.63$, $CMIN/df = 3.03$, $p < 0.01$, $GFI = 0.916$, $CFI = 0.918$, $TLI = 0.90$ and $RMSEA = 0.07$; for Taiwan sample: $\chi^2(119) = 281.524$, $CMIN/df = 2.366$, $p < 0.01$, $GFI = 0.89$, $CFI = 0.958$, $TLI = 0.945$ and $RMSEA = 0.072$. The R^2 for ATT was 0.10 and 0.29, and for PI was 0.52 and 0.55 for Vietnam and Taiwan samples, respectively. These showed evidence that the model provided considerable insights with regard to antecedents of PI toward buying green products, both direct and indirect ones across the two samples.

In this study, finally five hypotheses were tested for each sample. The results of hypothesis testing for each sample are presented in the following.

Vietnam sample. The results of SEM provided support for all five hypotheses. Specifically, the results confirmed that all three variables from the TPB were positive predictors of intention to purchase green products: *H1* proposed a positive impact of ATT on PI and it received support from the data: ($\beta_1 = 0.446$, $t = 9.01$); SN was found to have a positive effect on PI ($\gamma_1 = 0.227$; $t = 4.11$); thus, *H2* received support from the data. In addition, the findings also provided support for *H3* confirming that PBC was positively related to PI ($\gamma_2 = 0.39$; $t = 5.64$).

With regard to the impact of materialistic values, as our expectation, the relationship between SUC and ATT was positively significant ($\gamma_3 = 0.37$; $t = 4.38$). Therefore, *H4a* was supported. With regard to the impact of HAPPI on ATT, HAPPI was found to be negatively and significantly related to ATT ($\gamma_4 = -0.314$, $t = -3.76$), lending support for *H4c*. The path from gender to PI was not found to be significant.

Taiwan sample. In this study, five hypotheses were tested and four of them received support from the data, while one was not supported. As our expectation, the results showed that all the hypothesized paths pertaining to the impact of three determinants from the TPB on intention to purchase green products were positively significant. Specifically, ATT was a significant predictor of PI ($\beta_1 = 0.138$, $t = 2.94$), lending support to *H1*. SN was found to have a positive effect on PI ($\gamma_1 = 0.50$; $t = 6.55$); thus, *H2* received support from the data. In addition, the findings also provided support for *H3* confirming that PBC was positively related to PI ($\gamma_2 = 0.275$; $t = 5.14$).

With regard to the impact of materialistic values, unlike our expectation, the relationship between SUC and ATT was not statistically significant ($p > 0.05$). Therefore, *H4a* was not supported. With regard to the impact of HAPPI on ATT, as our expectation, HAPPI was found to be negatively and significantly related to ATT ($\gamma_4 = -0.52$, $t = -6.12$), lending support for *H4c*. Similar to the findings from the Vietnam sample, the path from gender to PI was not found to be significant, which is different from Wang's (2014)'s findings. The results of hypothesis testing are summarized in Table III.

	Mean	SD	1	2	3	4	5	6
1. ATT	5.54	1.19	<i>0.94</i>					
2. SN	4.80	1.24	0.66**	<i>0.88</i>				
3. PBC	5.52	1.04	0.23**	0.34**	<i>0.84</i>			
4. SUC	3.63	1.48	-0.19**	-0.12*	-0.04	<i>0.81</i>		
5. HAPPI	4.10	1.73	-0.16**	-0.18**	-0.06	0.75**	<i>0.80</i>	
6. PI	5.19	1.10	0.53**	0.65**	0.38**	-0.25**	-0.30**	<i>0.86</i>

Notes: The diagonal elements (in italic): the square root of the AVE of each construct. *,**Significant at 0.05 and 0.01 levels, respectively (two-tailed)

Table II. Descriptive statistics, correlation matrix and discriminant validity (Taiwan sample)

5. Discussion and implications

This study investigated the impact of several antecedents on intention to buy green products among consumers in Vietnam and Taiwan, with the focus on the effect of materialistic values on attitude. In this study, an extended TPB model with the integration of the three components of materialism was proposed. Five hypotheses were tested and all of them received support from the Vietnam data, while one failed to get support from the Taiwan data. Specifically, the findings confirm the significant and positive impact of all three antecedents from the TPB on green PI. This is consistent with the findings from many previous studies in the area of pro-environmental consumption (e.g. Cowan and Kinley, 2014; Nguyen *et al.*, 2019). For Taiwanese consumers, SN was found to be the most influential predictor of PI, followed by PBC and, finally ATT. However, for Vietnamese consumers, the contribution of ATT is the most salient in this study. Perhaps, in an emerging economy like Vietnam where consumers' understanding and experience regarding green products and green consumption is still at the early stage, forming a favorable ATT toward buying green products plays a very crucial role in enhancing consumer PI.

This study focuses on the relationship between materialistic values (i.e. SUC, CEN and HAPPI) and consumer ATT toward green purchase. The findings provided empirical evidence for supporting the significantly negative impact of HAPPI on ATT toward green purchase for both groups of Vietnamese and Taiwanese consumers. It means that consumers with high level of HAPPI value are more likely to hold a negative attitude toward green purchase. For these consumers, while pursuing luxuries in life for seeking pleasure and happiness, green products may be less favorable choices. Perhaps, in both Vietnam and Taiwan, there may still not be many green products that can bring joyful and comfortable feeling when using the products.

Contrary to our expectation, the negative impact of SUC on ATT failed to receive support from the Taiwan data. It means that those consumers with high level of SUC value, while pursuing and acquiring material objects as indicators of success and achievement in life, some specific green products may still be on the list. However, for better understanding, this issue should be further investigated in the future studies. As for Vietnamese consumers, SUC was found to be a positive predictor of ATT. It suggests that using green products may help consumers express the self as knowledgeable ones and a sign of their success (Nguyen *et al.*, 2019; Ogle *et al.*, 2014). This provides another piece of evidence that the green side can be associated with materialism.

From a theoretical perspective, this study investigates an important issue pertaining to the factors driving green PI in the context of two Asian economies, Vietnam and Taiwan. The research findings contribute to enrich our understanding about green purchase and its antecedents in the cross-cultural context, especially enhance our knowledge of the debatable relationship between materialism facets and pro-environmental behavior.

From a practical perspective, this study is expected to provide some managerial implications. The findings from this study provide insight to understand better consumers and satisfy better their needs. Based on the findings, firms should develop relevant and effective marketing strategies to attract consumers to engage more in buying green products. Firms may want to design effective communication campaigns to enhance the citizens' knowledge of

Hypotheses	Structural path	Taiwan	Vietnam
H1	ATT – PI	Positive (s)	Positive (s)
H2	SN – PI	Positive (s)	Positive (s)
H3	PBC – PI	Positive (s)	Positive (s)
H4a	SUC – ATT	Positive (ns)	Positive (s)
H4c	HAPPI – ATT	Negative (s)	Negative (s)

Notes: s, the hypothesis is supported; ns, the hypothesis is not supported

Table III.
The results of
hypothesis testing

green products and the multi-facet benefits associated with purchasing and consuming them so that consumers can receive favorable social influence regarding green purchase. This is especially appropriate in the context of collectivistic culture such as Vietnam and Taiwan. In Taiwan, SN was found to be the strongest predictor of PI, but currently the mean score of SN is still relatively low. This is an area that firms should work on. For Vietnamese consumers, since green consumption is still at the beginning stage, building favorable ATT toward green purchase is very important. In addition, firms also need to develop strategies to reduce barriers to access green products in terms of affordability, availability and other related issues so that consumers find it easier to control their purchases toward green products. Since the findings showed not only the negative side of materialism, but also the positive side of it, firms may want to develop strategies to promote the green side of materialism, especially the positive impact of SUC value. Specific green products can be developed and promoted associated with the image of status symbol, modern life style, and achievement indicators. More green products should be designed in the way that can bring consumers with happy, comfortable and pleasurable feeling in terms of the physical and spiritual one as well.

The findings of this study also provide some implications for policy makers to educate and guide consumers to become smarter and more responsible consumers in their purchases and consumption toward green products. Relevant and effective policies should also be developed to support firms in their business activities so that they can have strong commitment in offering better, more attractive and easier-to-access green products to the market.

References

- Ajzen, I. (1991), "The theory of planned behavior", *Organizational Behavior & Human Decision Processes*, Vol. 50 No. 2, pp. 179-211.
- Ajzen, I. (2011), "The theory of planned behaviour: reactions and reflections", *Psychology & Health*, Vol. 26 No. 9, pp. 1113-1127.
- Akenji, L. (2014), "Consumer scapegoatism and limits to green consumerism", *Journal of Cleaner Production*, Vol. 63, pp. 13-23.
- Antil, J.A. (1984), "Socially responsible consumers: profile and implications for public policy", *Journal of Macromarketing*, Vol. 4 No. 2, pp. 18-39.
- Belk, R.W. (1985), "Materialism: trait aspects of living in the material world", *Journal of Consumer Research*, Vol. 12 No. 4, pp. 265-280.
- Brown, K.W. and Kasser, T. (2005), "Are psychological and ecological well-being compatible? The role of values, mindfulness, and lifestyle", *Social Indicators Research*, Vol. 74 No. 2, pp. 349-368.
- Burroughs, J.E. and Rindfleisch, A. (2002), "Materialism and well-being: a conflicting values perspective", *Journal of Consumer Research*, Vol. 29 No. 4, pp. 348-370.
- Chan, R.Y.K. (2001), "Determinants of Chinese consumers' green purchase behavior", *Psychology and Marketing*, Vol. 8 No. 4, pp. 389-413.
- Chang, M.K. (1998), "Predicting unethical behavior: a comparison of the theory of reasoned action and the theory of planned behavior", *Journal of Business Ethics*, Vol. 17 No. 16, pp. 1825-1834.
- Chang, S. and Chang, C. (2017), "Tie strength, green expertise, and interpersonal influences on the purchase of organic food in an emerging market", *British Food Journal*, Vol. 119 No. 2, pp. 284-300.
- Chang, S. and Chou, C. (2018), "Consumer intention toward bringing your own shopping bags in Taiwan: an application of ethics perspective and theory of planned behavior", *Sustainability*, Vol. 10, pp. 1815-1829.
- Chua, K.B., Quoquab, F., Mohammad, J. and Basiruddin, R. (2016), "The mediating role of new ecological paradigm between value orientations and pro-environmental personal norm in the agricultural context", *Asia Pacific Journal of Marketing and Logistics*, Vol. 28 No. 2, pp. 323-349.

- Coleman, L.J., Bahnan, N., Kelkar, M. and Curry, N. (2011), "Walking the walk: how the theory of reasoned action explains adult and student intentions to go green", *Journal of Applied Business Research*, Vol. 27 No. 3, pp. 107-116.
- Cowan, K. and Kinley, T. (2014), "Green spirit: consumer empathies for green apparel", *International Journal of Consumer Studies*, Vol. 39 No. 5, pp. 493-499.
- Department of Civil Affairs, Taipei City Government (2019), "107年教育程度(含各區)", available at: https://ca.gov.taipei/News_Content.aspx?n=8693DC9620A1AABF&sms=D19E9582624D83CB&s=49EE949EED38EF73 (accessed May 18, 2019).
- Diamantopoulos, A., Schlegelmilch, B.B., Sinkovics, R.R. and Bohlen, G.M. (2003), "Can socio-demographics still play a role in profiling green consumers? A review of the evidence and an empirical investigation", *Journal of Business Research*, Vol. 56 No. 6, pp. 465-480.
- Fornell, C. and Larcker, D.F. (1981), "Evaluating structural equation models with unobservable variables and measurement error", *Journal of Marketing Research*, Vol. 18 No. 1, pp. 39-50.
- Gerbing, D.W. and Anderson, J.C. (1988), "An updated paradigm for scale development incorporating unidimensionality and its assessment", *Journal of Marketing Research*, Vol. 25 No. 2, pp. 186-192.
- Gonzalez, E.M., Felix, R., Carrete, L., Centeno, E. and Castano, R. (2015), "Green shades: a segmentation approach based on ecological consumer behavior in an emerging economy", *Journal of Marketing Theory and Practice*, Vol. 23 No. 3, pp. 287-302.
- Good, J. (2007), "Shop 'til we drop? Television, materialism and attitudes about the natural environment", *Mass Communication and Society*, Vol. 10 No. 3, pp. 365-383.
- Hair, J.F., Black, W.C., Babin, B.J. and Anderson, R.E. (2014), *Multivariate Data Analysis*, 7th ed., Pearson New International Edition, Pearson Education Limited, Harlow.
- Joshi, Y. and Rahman, Z. (2016), "Predictors of young consumer's green purchase behaviour", *Management of Environmental Quality: An International Journal*, Vol. 27 No. 4, pp. 452-472.
- Kilbourne, W.E. and Pickett, G.M. (2008), "How materialism affects environmental beliefs, concern, and environmentally responsible behavior", *Journal of Business Research*, Vol. 61 No. 9, pp. 885-893.
- Kim, S.-y., Yeo, J., Sohn, S.H., Rha, J.-y., Choi, S., Choi, A.y. and Shin, S. (2012), "Toward a composite measure of green consumption: an exploratory study using a Korean sample", *Journal of Family and Economic Issues*, Vol. 33 No. 2, pp. 199-214.
- Ko, S.B. and Jin, B. (2017), "Predictors of purchase intention toward green apparel products: a cross-cultural investigation in the USA and China", *Journal of Fashion Marketing and Management*, Vol. 21 No. 1, pp. 70-87.
- Le, V.H., Mai, T.T.C., Lobo, A., Nguyen, N. and Phan, H.L. (2019), "Effective segmentation of organic food consumers in Vietnam using food-related lifestyles", *Sustainability*, Vol. 11, p. 1237.
- Lu, L., Chang, H. and Chang, A. (2015), "Consumer personality and green buying intention: the mediate role of consumer ethical beliefs", *Journal of Business Ethics*, Vol. 127 No. 1, pp. 205-219.
- Lu, L.C. and Lu, C.J. (2010), "Moral philosophy, materialism, and consumer ethics: an exploratory study in Indonesia", *Journal of Business Ethics*, Vol. 94 No. 2, pp. 193-210.
- Narula, S.A. and Desore, A. (2016), "Framing green consumer behavior research: opportunities and challenges", *Social Responsibility Journal*, Vol. 12 No. 1, pp. 1-22.
- Nguyen, T.T.M. and Nguyen, H.L. (2017), "Antecedents of intention and behavior toward purchase of counterfeit luxury goods in an emerging economy: a study of young Vietnamese consumers", *Organizations and Markets in Emerging Economies*, Vol. 8 No. 2, pp. 73-90.
- Nguyen, T.T.M. and Tambyah, S.K. (2011), "Antecedents and consequences of status consumption among urban Vietnamese consumers", *Organizations and Markets in Emerging Economies*, Vol. 2 No. 1, pp. 75-98.
- Nguyen, T.T.M., Nguyen, H.L. and Nguyen, V.H. (2019), "Materialistic values and green apparel purchase intention among young Vietnamese consumers", *Young Consumers* (online version), available at: <https://doi.org/10.1108/YC-10-2018-0859> (accessed July 20, 2019).

- Ogle, J., Hyllegard, K.H., Yan, R. and Littrell, M.A. (2014), "Segmenting the teen girl apparel market: differences in fashion involvement, materialism and social responsibility", *Young Consumers*, Vol. 15 No. 2, pp. 153-166.
- Perera, L. and Klein, J. (2011), "Green consumption and materialism among young consumers", in Ahluwalia, R., Chartrand, T.L. and Ratne, R.K. (Eds), *NA – Advances in Consumer Research*, Vol. 39, Association for Consumer Research, Duluth, MN, pp. 735-737.
- Pickett, G.M., Kangun, N. and Grove, S. (1993), "Is there a general conserving consumer? A public policy concern", *Journal of Public Policy & Marketing*, Vol. 12 No. 2, pp. 234-243.
- Polonsky, M., Kilbourne, W. and Vocino, A. (2014), "Relationship between the dominant social paradigm, materialism and environmental behaviours in four Asian economies", *European Journal of Marketing*, Vol. 48 No. 3, pp. 522-551.
- Polonsky, M.J. (2011), "Transformative green marketing: impediments and opportunities", *Journal of Business Research*, Vol. 64 No. 12, pp. 1311-1319.
- Prothero, A., Dobscha, S., Freund, J., Kilbourne, W.E., Luchs, M.G., Ozanne, L.K. and Thøgersen, J. (2011), "Sustainable consumption: opportunities for consumer research and public policy", *Journal of Public Policy & Marketing*, Vol. 30 No. 1, pp. 31-38.
- Rahimah, A., Khalil, S., Cheng, J.M., Tran, M.D. and Panwar, V. (2018), "Understanding green purchase behavior through death anxiety and individual social responsibility: mastery as a moderator", *Journal of Consumer Behaviour*, Vol. 19 No. 3, pp. 1-14.
- Richins, M.L. (2004), "The material values scale: measurement properties and development of a short form", *Journal of Consumer Research*, Vol. 31 No. 1, pp. 209-219.
- Richins, M.L. and Dawson, S. (1992), "A consumer values orientation for materialism and its measurement: scale development and validation", *Journal of Consumer Research*, Vol. 19 No. 3, pp. 303-316.
- Segev, S., Shoham, A. and Gavish, Y. (2015), "A closer look into the materialism construct: the antecedents and consequences of materialism and its three facets", *Journal of Consumer Marketing*, Vol. 32 No. 2, pp. 85-98.
- Simon, J.L. (1995), *The Management of Advertising*, Prentice Hall, Engelwood Cliffs, NJ.
- Strizhakova, Y. and Coulter, R.A. (2013), "The 'green' side of materialism in emerging BRIC and developed markets: the moderating role of global cultural identity", *International Journal of Research in Marketing*, Vol. 30 No. 1, pp. 69-82.
- Wang (2014), "Consumer characteristics and social influence factors on green purchasing intentions", *Marketing Intelligence & Planning*, Vol. 32 No. 7, pp. 738-753.
- Welsch, H. and Kühling, J. (2009), "Determinants of pro-environmental consumption: the role of references groups and routine behavior", *Ecological Economics*, Vol. 69 No. 1, pp. 166-176.
- Zibenberg, A., Itay, G., Tally, K. and Handy, F. (2018), "Environmental behavior among Russian youth: the role of self-direction and environmental concern", *Environmental Management*, Vol. 62 No. 2, pp. 295-304.

Further reading

- Nguyen, T.N., Lobo, A. and Greenland, S. (2017), "The influence of cultural values on green purchase behaviour", *Marketing Intelligence & Planning*, Vol. 35 No. 3, pp. 377-396.

Corresponding author

Nguyen Thi Tuyet Mai can be contacted at: tuyetmaisdh@neu.edu.vn

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