

Original Article

Determinants of Consumers' Willingness to Pay for Green Products: The Moderating Role of Price

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Abstract - Consumers' willingness to pay for green products in the context of emerging markets as an outcome to which certain factors contribute is not adequately studied. The purpose of this paper is, therefore, to investigate the determinants of attitude, normative beliefs, green products experience and price in relation to consumers' willingness to pay for green products and whether price moderates the relationships between attitude, normative beliefs and green products experience with consumers' willingness to pay for green products. PLS-SEM technique is deployed to test the hypothesized relationships. Data to all variables of interest in this study is collected from a survey using structured self-administered questionnaires. The non-probability sampling approach of purposive sampling is used to collect data from 250 respondents. Empirical findings have shown that attitude and price have a significant positive relationship with consumers' willingness to pay for green products. It is also found that price negatively moderates the relationship of attitude with consumers' willingness to pay for green products. In this regard, the positive relationship between attitude and consumers' willingness to pay for green products is weakened the higher the price of green products. This paper further highlights some limitations as well as managerial implications prior to conclusions.

Keywords — Green products, attitude, normative beliefs, green products experience, price, consumers' willingness to pay.

I. INTRODUCTION

Consumers in recent years are increasingly becoming more concerned with environmental problems, including the depletion of natural resources, air and water pollution, soil erosion as well as climate change that have occurred globally and consequently, they are proactively developing green practices and behaviour to reduce any negative environmental impacts (Kumar & Ghodeswar, 2015; Arissa *et al.*, 2020). In view of this, consumers' consciousness towards environmental issues has prompted them to switch to green products as a way to preserve and protect the environment (Yang, 2017; Arissa *et al.*, 2020). Moreover, some past studies such as Braga Junior *et al.* (2015), Mogan, Lee and Bhojar (2018) and Mahmoud (2018) have recognized green products are those products

that have a minor impact on the environment with the use of ingredients, materials or contents that are eco-friendly, recyclable and requiring less packaging to safeguard the environment and human health. As consumers change their consumption patterns from non-green substitutes by taking into account the adverse environmental impacts, this has resulted in the demand for green products to increase in the global marketplace (Mustafa *et al.*, 2016; Okunuga, 2019; Yue *et al.*, 2020). Such an increase in demand for green products is further driven by business organizations in their efforts made to produce and promote products that are eco-friendly (Choudhary & Gokarn, 2013; Nadiah & Norashikin, 2019).

The consumption of green products is seen as a rising trend in Malaysia (Rajadurai, Bathmanathan & Azami, 2018; Mogan, Lee & Bhojar, 2018), albeit several past studies have highlighted a perceived lack of intention in purchasing green products among Malaysian consumers (Sharaf, Isa & Al-Qasa, 2015; Azhan *et al.*, 2018; Nadiah & Norashikin, 2019; Tan, Adedapo & Ramayah, 2019). Nevertheless, Malaysia is not only considered as one of the lucrative markets for green products (Kong *et al.*, 2014) but also due to the awareness and concerns of consumers to the environment, the idea for going green has been gradually gaining acceptance among Malaysian consumers (Mohd Suki, 2016) and as such, they show a positive attitude is willing to spend more money to acquire green products when consumers perceive the products bought to carry an extra value which improves their well-being (Hasan & Ali, 2015; Syazana & Raemah, 2015; Mustafa *et al.*, 2016; Sharaf & Perumal, 2018; Alam *et al.*, 2019). The studies by Ritter *et al.* (2015), Biswas and Roy (2015), as well as Biswas (2016) have further contended that individuals are willing to pay the premium price for green products if they are concerned about the environmental impact on their mode of consumption.

In relation to the willingness to pay for green products in the context of Malaysia is a set of accessible normative beliefs concerning the expectations of important referents to the status in using green products and green products experience. Past researches (Ooi, Kwek & Tan, 2012; Lasuin & Ng, 2014; Sharaf, Isa & Al-Qasa, 2015; Al Mamun *et al.*, 2018) have shown that consumers in Malaysia are willing to pay in making a purchase of green



products when they are influenced by social norms, perceptions and cultural beliefs expectedly held among friends, peers and family towards individuals that recognize the use of such green products is consistent with their pro-environmental behaviour. Additionally, several scholars like Sharaf, Isa and Al-Qasa (2015), Lai and Cheng (2016), Haliza (2018) as well as Alam *et al.* (2019) have asserted that consumers with experience and knowledge about the environmental-friendly features of green products are more likely to use and purchase products with green attributes.

While a number of past studies have investigated the decision of green products purchase behaviour in both developed and developing countries, few studies have addressed the willingness of consumers to pay a higher price for green products with environmental credentials in emerging markets, particularly in Malaysia. In a similar vein, researchers like Biswas (2016) has highlighted the intention of consumers to pay a premium for green products still remains under-studied in emerging economies of the East. Since most consumers in Malaysia have perceived green products to be costly as compared to traditional alternatives (Sharaf & Perumal, 2018; Cheng, Govindan & Bathmanathan, 2018), they are invariably paying a high price and thereby incurring higher expenses in green products, which is however claimed to have deterred green consumption (Shahnaei, 2012; Azhan *et al.*, 2018). Under this circumstance, therefore, it is imperative for this study to explore the role of the green product price in moderating the willingness of consumers to pay for green products.

Underpinned by the theory of planned behaviour (Ajzen, 1991) that has been used to determine environmental-friendly consumer buying behaviour, this present study is aimed to examine the determinants of attitude, normative beliefs, green products experience and price in relation to consumers' willingness to pay for green products and whether the price of green products moderates the relationships on attitude, normative beliefs and green products experience with respect to consumers' willingness to pay.

II. LITERATURE REVIEW AND HYPOTHESES

According to Sriwaranun *et al.* (2015) and Biswas (2016), willingness to pay is the maximum value that consumers are willing to contribute to exchange an equalised value of the item, be it a product or service. Previous studies by Prakash and Pathak (2017) and Chaudhary (2018), in fact, have confirmed that willingness to pay significantly influences green purchase intention. Within the current context, nonetheless, consumers' willingness to pay for green products is regarded as a green purchase intention to reflect the individual's consideration of lessening environmental pollution and the readiness to display behaviour that is consistent with green purchase intention (Chen & Deng, 2016; Al Mamun *et al.*, 2018).

A review of past literature reveals that the influence of attitude towards consumers' green purchase behaviour still remains inconclusive (Joshi & Rahman, 2015). Having said that, consumers are more likely to show a positive attitude towards green products consumption when they are more concerned to the environmental problems (Khan, Chamhuri & Farah, 2015; Joshi & Rahman, 2015; Najdah & Ezzati, 2017; Aulina & Yuliati, 2017) whereas Rajadurai, Bathmanathan and Azami (2018) in their study argues that people spend a considerable amount of money when they portray attitude towards environmental protection and green living. Previous studies by Nam, Dong and Lee (2017), Ferraz *et al.* (2017) and Prakash and Pathak (2017) have highlighted the significance of consumer attitude as a predictor in the context of green purchasing. This is further supported by Mustafa *et al.* (2016), Rashid and Shaharudin (2017), Alam *et al.* (2019), Yue *et al.* (2020) that assert green awareness of consumers with their environmental attitude has a positive impact on consumers' willingness to pay for green products. Therefore, this paper hypothesizes that:

H1: Attitude has a significant positive relationship with consumers' willingness to pay for green products.

The consumption of green products is also influenced by a set of accessible normative beliefs held by reference groups including friends, colleagues, family members and peer groups that are important to individuals (Joshi & Rahman, 2016; Chen & Liang, 2016; Chen & Deng, 2016; Nam, Dong & Lee, 2017). In other words, individual consumers feel obliged to consume green products that give them a sense of recognition by important referents who have also appealed to the same such products to show conformity (Kumar & Ghodeswar, 2015; Bukhari, Rana & Bhatti, 2017). Under the influence of a reference group that creates social and cultural beliefs, individual consumers are motivated to act in a manner that they are willing to pay for green consumption that is consistent with their environmental-conscious attitude (Al Mamun *et al.*, 2018). This paper, therefore, hypothesizes that:

H2: Normative beliefs have a significant positive relationship with consumers' willingness to pay for green products.

Several studies in the past (Mohd Suki, 2016; Maichum, Parichatnon & Peng, 2017; Haliza, 2018; Alam *et al.*, 2019) moreover have considered experience and knowledge about green products as one of the factors influencing green products consumption. According to Nam, Dong and Lee (2017), Bukhari, Rana and Bhatti (2017) as well as Rashid and Shaharudin (2017), products with green attributes offer consumers a positive experience regarding eco-friendly features of the products in addition to the knowledge and benefits gained by consumers which in turn translates to the purchase of green products. This implies experienced consumers are willing to pay for green products when they have realized the benefits from green

products consumption. Therefore, this paper hypothesizes that:

H3: Green product experience has a significant positive relationship with consumers' willingness to pay for green products.

By and large, consumers' willingness to pay for green consumption is also dependent upon the price of green products. Price denotes the cost paid for a product, and thus, green pricing refers to the price specified in tandem with the organizational policies with regard to environmental consideration based on organizational rules, instructions or its initiatives in this regard (Mahmoud, 2018). While Pedro and Lemke (2013), Sriwaranun *et al.*(2015), Biswas (2016), Sharaf and Isa (2017); Cheng, Govindan and Bathmanathan (2018) maintain that people are ready to pay extra for products that are not severely damaging the environment compared to non-green products, other studies such as Sharaf and Perumal (2018), Mahmoud (2018) and Alam *et al.*(2019) concur that many consumers are prepared to pay a higher price for green products that are value-added, which comes in the form of a more creative design, good taste, better quality or superior performance. Given price is a critical factor in green purchasing, environmental-conscious consumers, particularly the middle-class, might avoid purchasing green products if they cost more in comparison to non-green substitutes (Azhan *et al.*, 2018; Jeevandas, Nair & Vivek, 2019; Yue *et al.*, 2020). In that sense, the higher price is seen as a barrier to consuming green products, which hampers the willingness of consumers to pay for such goods. Nonetheless, a recent study by Arissa *et al.*(2020) has concluded that price sensitivity is relative, and consumers are willing to buy green products if the green product price is the same as other non-green products. Some past studies by Ali and Ahmad (2012), Ansar (2013), and Alam *et al.*(2019) have further argued that consumers with positive attitudes and experience are motivated to consume green products as long as green producers offer a reasonable price. Since price becomes a critical factor affecting the extent to which consumers pay for green products, there is a need to examine the moderating effect of price on consumers' willingness to pay for green products. Therefore, this paper formulates the following hypotheses:

- H4: Price has a significant positive relationship with consumers' willingness to pay for green products.
 H5: Price moderates the relationship between attitude and consumers' willingness to pay for green products.
 H6: Price moderates the relationship between normative beliefs and consumers' willingness to pay for green products.
 H7: Price moderates the relationship between green products experience and consumers' willingness to pay for green products.

III. METHODOLOGY

This present study employs a cross-sectional design using the survey method with structured self-administered questionnaires as a tool to collect quantitative data for all variables of interest studied. The measurement items are adapted from previously validated scales. All measurement items to this study are anchored by a 5-point Likert scale ranging from "strongly disagree" (1) to "strongly agree" (5) for both predictor variables and the outcome variable. The predictor variables include the attitude of consumers towards green products, which has 4 measurement items adapted from Mohd Suki (2016), normative beliefs with 4 measurement items adapted from Al Mamun *et al.*(2018), green products experience with 4 measurement items adapted from Kumar and Ghodeswar (2015) and price with 3 measurement items adapted from Sharaf and Perumal (2018). The outcome variable is consumers' willingness to pay for green products, which has 6 measurement items adapted from Al Mamun *et al.*(2018).

A total of 800 questionnaires survey is distributed to individual consumers of various ethnic races shopping in grocery-chain stores, retail outlets, hypermarkets and shopping malls located in the areas of Selangor and Kuala Lumpur, Malaysia. The reason for targeting individual consumers in these two regional areas stated is that they are perceived to be environmental-conscious by showing an inclination to go green in consuming green products. The non-probability approach of purposive sampling is used to collect data from the targeted respondents that buy green products as part of their green lifestyles. The unit of analysis is at the individual level. From the 800 questionnaires disseminated to individual consumers, only 250 or 31.25% of them were returned and usable, representing the sample size for this study. PLS-SEM method using SmartPLS (M2) is deployed to analyze the data gathered.

IV. RESULTS OF MEASUREMENT AND STRUCTURAL MODELS

Our data analysis begins with checking for common method variance bias since the information was collected from a single source through a single questionnaire. Following Harman's single-factor test with the use of exploratory factor analysis, common method variance bias arises when a single latent variable is accounted for the majority of the total variance explained (Podsakoff, MacKenzie & Lee, 2003) in which this implies a false relationship between constructs. The unrotated factor analysis has shown that the first factor is only accounted for 14.63% of the cumulative variance of 64.68%, far less than 50%, which suggests a latent variable is not accounted for the majority of the total variance explained. The results from the principal component analysis (PCA) have revealed 6 factors with eigenvalues greater than 1, and thus, the variables studied are clearly factorizable with KMO Measures of Sampling Adequacy indicating 0.696 (larger than 0.6) and a significant Bartlett's Test of Sphericity result (Sig. = 0.000). This study, therefore, concludes that common method variance bias is not a serious problem.

This is followed by running the PLS algorithm to evaluate the reliability and validity of the reflective measurement model using the four main criteria, which include internal consistency reliability, indicator reliability, convergent validity and discriminant validity.

Table 1. Evaluation of Measurement Model

Construct	Item	Loadings	AVE	Composite Reliability	T-statistics
Attitude	AT2	0.7808	0.6174	0.8287	7.307
	AT3	0.7577			5.304
	AT4	0.8177			9.147
Green Product Experience	GPE2	0.8250	0.7483	0.8986	9.409
	GPE3	0.9615			12.381
	GPE4	0.7999			7.712
Normative Belief	NB4	1.0000	1.0000	1.0000	n.a
Pricing	P1	0.9100	0.7024	0.8752	11.243
	P2	0.8747			10.218
	P3	0.7171			5.297
Consumers' Willingness to Pay	CWTP1	0.7881	0.5816	0.8471	8.797
	CWTP2	0.8230			9.396
	CWTP5	0.7180			6.603
	CWTP6	0.7158			5.997

As shown in Table 1, one of the criteria to be evaluated is internal consistency reliability using the measure of composite reliability (CR). The results show that values of composite reliability range from 0.8287 to 1.0000, which are above the recommended threshold value of 0.8, indicating the measures used to represent the constructs have achieved internal consistency reliability (Chin, 2010). The measurement has also demonstrated adequate indicator reliability when each indicator's outer loadings exceed 0.708 (Hair *et al.*, 2014). Convergent validity of the measurement model is established when all the latent variables have average variance extracted (AVE) values ranging from 0.5816 to 1.0000, and all are above the minimum criteria of 0.5 (Henseler, Ringle & Sinkovics, 2009). In addition, all the t-values are statistically significant at 0.05 levels, and hence, all the measurement items are signs explaining the constructs studied.

Discriminant validity of the constructs is assessed using one of the two measures, which is Fornell-Larcker's criterion. The measurement model exhibits discriminant validity when the square root of each construct's AVE exceeds the correlations between the construct and all other constructs in the model. The results of discriminant validity of all the constructs are shown in the following Table 2.

Table 2. Fornell-Larcker's criterion

	Attitude	CWTP	Green Product Experience	Normative Belief	Price
Attitude	0.7858				
CWTP	0.3616	0.7626			
GPE	0.0780	0.0788	0.8651		
Normative Belief	0.0367	0.0258	0.1313	1	
Price	0.3561	0.3517	-0.1105	0.1671	0.8381

Overall, the measurement model of this study is satisfactory, which is supported by sufficient evidence in terms of internal consistency reliability, indicators reliability, convergent validity and discriminant validity.

This study then proceeds to test the hypothesized relationships between latent constructs within the structural model when the measurement model is satisfactorily met. In evaluating the structural model with proposed hypotheses, the study bootstraps a total of 500 resamples from 250 observed cases originally used with 'no sign change option' to generate the path-model coefficients, their standard errors (SE) of the estimate and t-values.

The following Table 3 summarizes the significance of the testing results of path-coefficients without the presence of the moderating variable.

Table 3. Significance Testing Results of Path Coefficients without the Moderator

Hypothesis	Relationship	Path-Coefficient, β	Std Error (SE)	t-value
H1	Attitude -> CWTP	0.2474	0.0624	3.963**
H2	Normative Belief -> CWTP	-0.0729	0.0674	1.083
H3	GPE -> CWTP	-0.0418	0.0767	0.545
H4	Price -> CWTP	0.2176	0.0692	3.146**

Note: Significant at * $p < 0.05$; ** $p < 0.01$

The results highlight a significant positive relationship between the attitude of consumers towards green consumption and consumers' willingness to pay for green products ($\beta = 0.2474$; $t = 3.963$; $p < 0.01$) and therefore, the proposed hypothesis H1 is supported. It is also reported that price has a significant positive relationship with consumers' willingness to pay for green products ($\beta = 0.2176$; $t = 3.146$; $p < 0.01$), and hence, the proposed hypothesis H4 is supported. The study further suggests that attitude and price are significant predictors of consumers' willingness to pay for green products.

On the other hand, the findings of this study show that normative beliefs and green products experience (GPE) is not significantly related to consumers' willingness to pay for green products and hence, the proposed hypotheses H2 and H3 are not supported, respectively.

It is now followed by testing the hypothesized moderating effects of price on the relationships between attitude, normative beliefs and green products experience with respect to consumers' willingness to pay. The following path model (e.g. Fig.1) highlights the moderation effects with the inclusion of the three interaction terms – attitude and price, normative beliefs and price and green products experience and price.

Table 4. Results of the Moderator Analysis

Hypothesis	Relationship	Path-Coefficient, β	Std Error (SE)	t-value
H5	Attitude * Price -> CWTP	-0.1354	0.0605	2.238*
H6	Normative Belief * Price -> CWTP	-0.0232	0.0656	0.354
H7	GPE * Price -> CWTP	-0.0746	0.1070	0.697

Note: Significant at * $p < 0.05$; ** $p < 0.01$

The results from Table 4 have shown that price significantly moderates the relationship between attitude and consumers' willingness to pay for green products ($\beta = -0.1354$; $t = 2.238$; $p < 0.05$). The proposed hypothesis H5 is therefore supported. The coefficient of interaction is negative ($\beta = -0.1354$), indicating that the positive relationship between attitude and consumers' willingness to pay is weakened the higher the price of green products.

The study, however, has found that normative beliefs and green products experience are not moderated by price, and therefore, the proposed hypotheses H6 and H7 are not supported, respectively.

V. DISCUSSION OF FINDINGS

Our empirical findings have confirmed that the attitude of consumers towards green consumption and price have a significant positive influence on consumers' willingness to pay for green products. This is consistent

with other past studies that opine Malaysian consumers expressing concerns over environmental problems will show a positive attitude towards green products, and hence, they are willing to pay for these products with environmental-friendly features (Sriwaranun *et al.*, 2015; Cheng, Govindan & Bathmanathan, 2018; Alam *et al.*, 2019). Similarly, the price of green products is also found to be a significant predictor influencing consumers' willingness to pay in that Malaysian consumers recognize that a higher price for green products relative to non-green products usually comes with additional consumption value and benefits gained (Sharaf & Isa, 2017; Haliza, 2018; Alam *et al.*, 2019; Tan, Adedapo & Ramayah, 2019; Arissa *et al.*, 2020).

Nevertheless, the price has negatively moderated the relationship of attitude with consumers' willingness to pay, which further suggests that a higher green products price is shown to have weakened the attitude of consumers with

their willingness to pay for green products. Such findings are in line with other studies (Joshi & Rahman, 2015; Azhan *et al.*, 2018; Sharaf & Perumal, 2018; Yue *et al.*, 2020), implying that consumers whose attitude in

favour of green products consumption are hindered by the increase in price that decreases their willingness to pay for products that are environmental-friendly.

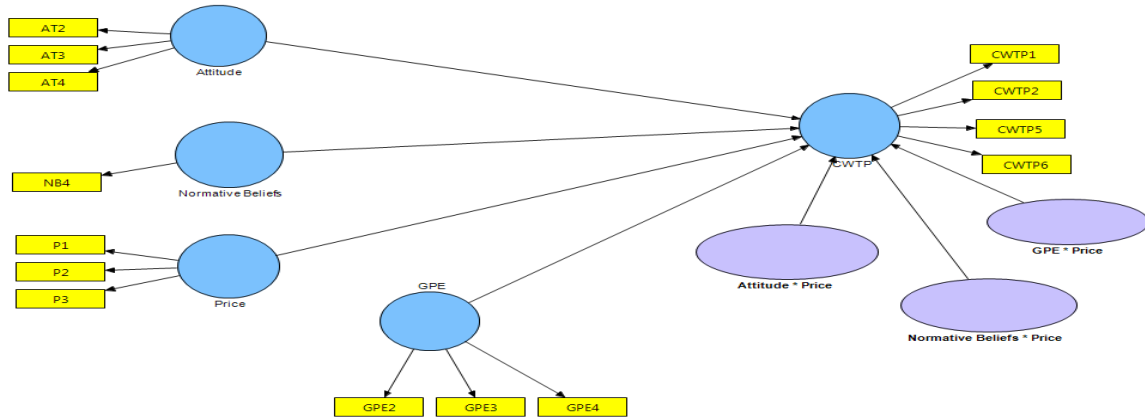


Fig. 1 Path-Model With the Inclusion of Three Interaction Terms For Testing Moderation Effects

VI. LIMITATIONS

This study is not without any limitations. Apart from the four predictors investigated in this study, there are many other variables involving consumers price sensitivity and household income level that would affect willingness to pay for green products to be included in the context of emerging markets, especially in Malaysia. This research can also be done by including other mediating and moderating variables to narrow the literature gap. Another limitation is that the empirical findings are only generalizable to consumers within the areas of Selangor and Kuala Lumpur since the sample considered in this study is restricted to these two regional areas of Malaysia.

VII. MANAGERIAL IMPLICATIONS

This study is beneficial to both policymakers as well as business and marketing practitioners. Since consumers exhibit a positive attitude towards spending for green products, the government should incentivize manufacturers to develop and produce products that are environmental-friendly in order to meet the local market demands. Product pricing can also be used by firms and businesses to better market their green products. In particular, reasonable pricing of green products will enable marketers to differentiate green products from non-green substitutes, giving the consumers an impression that green products are uniquely distinctive and thus, generating more demands by consumers willing to pay for green products that not only help protect the environment but also safeguard one’s health.

VIII. CONCLUSION

The study addresses consumers’ willingness to pay for green products, which has not been adequately studied in the context of emerging economies of the East, in particular among consumers in Malaysia that are

witnessing an increasing trend in consuming green products that are deemed to be eco-friendly. It also attempts to close the gap by evaluating whether the price of green products plays a moderating role with attitude, green products experience and normative beliefs towards consumers’ willingness to pay for products that are environmental-friendly. The findings of this present study conclude that attitude and price are significant predictors positively influencing consumers’ willingness to pay for green products. The analysis of moderation effects further shows that price has negatively moderated the relationship between attitude and consumers’ willingness to pay for green products, which implies the positive attitude of consumers towards green consumption and their willingness to pay for green products are weakened the higher the price of green products. In view of this, a higher green products price is considered a barrier to consuming green products, and as such, consumers might not be willing to pay for green products that are too expensive, although they show a positive attitude in favour of green products consumption. Some limitations and managerial implications of this study are also highlighted.

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