Use of Structural Equation Modeling to Predict the Intention to Purchase Green and Sustainable Homes in Malaysia

Teck Hong Tan[1]

[1] Sunway University, Malaysia

Correspondence: Teck Hong Tan, Sunway University, Malaysia. E-mail: waltert@sunway.edu.my

Abstract

This paper attempts to measure the intention of homebuyers to purchase green and sustainable homes using an extended theory of planned behavior model (TPB) in Malaysia. The results obtained indicate that attitude towards green housing, perceived behavior control, and perceived self-identity have positive causal effects on behavioral intentions to purchase such homes. However, social referents' opinion relating to sustainable homes is not significantly related to intent to purchase. The findings also indicate that interdependencies among psychosocial variables are important extensions of TPB to predict behavioral intentions to purchase green and sustainable homes.

Keywords: green and sustainable homes, intention, structural equation modeling, Malaysia

1. Introduction

The growing interest among consumers in regard to the issue of sustainability has resulted in studies that have looked at households in relation to green product purchases ranging from organic foods (Mohd et al., 2010; Smith & Paladino, 2010; Arvola et al., 2008), hybrid cars (Oliver & Lee, 2010), green hotels (Han et al., 2010), eco-friendly wine (Barber et al., 2010), cloth diapers (Ramayah et al., 2010) to sustainably produced food (Robinson & Smith, 2002). However, there has been little research carried out to examine households' intentions for purchasing eco-friendly homes.

The construction of green and sustainable homes is one of the focus areas of sustainable development to improve the quality of living (Ezeanya, 2004; Tan, 2012). Houses are considered 'green' when they use environemtnally friendly materials for construction such as recyclable timber products, recyclable roof systems, recyclable kitchen cabinets, certified energy efficient appliances, compact fluorescent lamps and light-emitting diode lighting system (Tan, 2013).

Malaysia is only at the infancy stage of energy efficiency which includes natural ventilation and lighting capabilities at the most basic level. It may take a while before housing developers build homes using full-blown energy sustainability capabilities with recyclable materials, carbon neutral emission or water harvesting features. Despite the potential in the housing market for green homes, very little is known about the behavioral intentions of house buyers in the Malaysian context. Therefore, a case study of green and sustainable housing in Malaysia was conducted in this paper this study to examine the purchase intentions of house buyers towards green and sustainable homes.

In this study, the extended theory of planned behavior is used to examine the effect of psychosocial variables on households' intentions to own green and sustainable homes. The theory of planned behavior (TPB) is one of the most popular paradigms designed for the prediction and understanding of behavioral intentions (Madden et al., 1992; Robinson, 2002; Arvola et al., 2008). TPB suggests that an individual's behavior is determined by his or her intention to engage in the given behavior (Ajzen, 1991). Underlying intentions include attitudes toward the behavior, subjective norms, and perceived behavior control. Based on findings from previous research, it is determined that an adaptation of TPB to include self-identify would be appropriate for the prediction of behavioral intentions (Sparks & Shepherd, 1992). Additionally, it appears that recent empirical works show that behavior intention is not a function of independent sets of psychosocial variables, but of a complex set of interdependence. In order to capture the theory's richness, this study expands the theory's behavioral intention paradigm by considering all interrelationships between these variables that are not previously examined.

2. Literature Review

Intentions are subjective judgments about how individuals will behave in the future and they provide a connection between individuals and purchased products (Kim & Littrell, 1999; Madden et al., 1992). The strength of intention as a surrogate measure of future behavior was demonstrated in previous studies (Morwitz et al., 2007; Chan & Lau, 2000). Among the theories used to explain purchase intentions, the Theory of Planned Behavior (TPB), an extension of the Theory of Reasoned Action (TRA), has been shown to provide an excellent framework for identifying predictors of intention to purchase a particular product (Ajzen & Madden, 1986; Han et al., 2010).

In order to determine the buying intention of house buyers, there is a need to know their attitudes towards green and sustainable homes. According to Ajzen (1991) and Ajzen and Madden (1986), attitude refers to the degree to which an individual has a favorable or unfavorable evaluation of the given behavior. If individuals believe the act of a specific behavior will produce a good outcome, then they will develop a positive attitude toward the behavior (Ajzen & Fishbein, 1980). In the context of green product buying intention, attitudes towards environmentally sensitive homes do have an impact on purchase intentions (Alwitt & Pitts, 1996). Squires et al. (2001) further supported the point that individuals who hold positive and favorable attitudes tend to purchase more green products than those without these attitudes. It is therefore reasonable to believe that potential homebuyers hold a positive attitude toward green homes because green homes are designed to reduce the overall impact of the built environment on human health and natural environment by using renewable resources and reducing environmental degradation. Therefore, it could be hypothesized that individuals who have a favorable attitude toward green and sustainable homes are likely to intend to purchase eco-friendly homes.

Intent to purchase green and sustainable homes might be influenced by subjective norm, which refers to the social pressure to perform or not to perform the behavior according to the perception of other people (Ajzen, 1991; Ajzen & Madden, 1986). The individual's subjective norm about performing the behavior is influenced by the normative belief. Normative beliefs are concerned with the likelihood that social referents such as the individual's spouse, family, or friends agree or disagree with carrying out a given behavior (Ajzen, 1991). As pointed by Oliver and Bearden (1985), these norms are based on the preferences of the individual's referents and also the person's desires to act in line with these preferences. Thus, buying intentions of green and sustainable homes may depend on the influence of social referents.

Despite the positive attitude and perception of others have on the intention to buy green and sustainable homes, the degree of perceived behavioral control, which is the main variable that distinguishes TPB from TRA, is another predictor of behavioral intentions. Perceived behavior control refers to an individual's perception of the ease or difficulty of performing the given behavior. Perceived behavioral control is dependent on control beliefs which deal with the presence or absence of requisite resources and opportunities for performing a given behavior (Ajzen, 1991; Ajzen & Madden, 1986). The perception about how difficult it is to perform the given behavior is subject to price and availability of that particular product (Ajzen, 1991). In the case of green products, price and availability have the potential to limit or even prevent individuals' green purchases. Magnusson et al., (2001) and Smith and Paladina (2010) both argued that many individuals consider price to be an important determinant of green purchases. For example, price is often perceived to be a major barrier to the purchase of organic produce (Lea & Worsley, 2005; Magnusson et al., 2001; Michaelidou & Hassan, 2010). Additionally, lack of availability is often cited as a barrier to the purchase of green products (Davies et a., 1995; Lea & Worsely, 2005). Studies have demonstrated that individuals will purchase more green products if these are more readily available (Lea & Worsley, 2005). As such, it could be hypothesized that the perceived availability of resources and opportunities may influence behavioral intentions towards green and sustainable homes.

Many recent researchers have indicated that TPB cannot adequately predict individuals' intentions; as a result, they proposed an extension of the theory by considering perceived self-identify as a determinant of buying intentions. As discussed by Sparks and Shepherd (1992), Fekadu and Kraft (2001), Fielding et al. (2008) and Nigbur et al. (2010), perceived self-identity may enhance the prediction of behavioral intentions. Perceived self-identity refers to the salient aspects of an individual's self-identity towards performing a given behavior (Rise et al., 2010; Cook et al., 2002). Sparks and Shepherd (1992) stated that individuals' self-identity is defined in terms of the societal roles that they identify with. Individuals buy the products that are congruent with their self-image. When the particular product can fulfil their needs, the choice of that product will reflect their self-identity (Koklic & Vida, 2009; Oliver & Lee, 2010). In the case of green product purchases, the construct of perceived self-identify is related to how individuals consider themselves as environmentally conscious consumers. As defined by Grunert and Juhl (1995), environmentally concerned consumers are concerned with the production, distribution, use and disposal of products. Thus, it is reasonable to believe that environmentally

conscious consumers are more likely to intend to purchase green and sustainable homes.

In modeling these relationships, several hypotheses are tested as follows:

H1: Attitude towards green and sustainable homes (A) is a significant predictor of behavioural intentions to purchase green and sustainable homes (PI).

H2: Social referents' influence (SN) is a significant predictor of behavioural intentions to purchase green and sustainable homes (PI).

H3: Perceived behavioural control (PBC) is a significant predictor of behavioural intentions to purchase green and sustainable homes (PI).

H4: Perceived self-identity (SI) is a significant predictor of behavioural intentions to purchase green and sustainable homes (PI).

As indicated earlier, this paper expands the theory's richness by considering interrelationships between psychosocial variables that have not been fully examined. These relationships may have significant impacts on green and sustainable homes purchase intentions and should therefore be investigated in this paper.

Positive attitudes towards green and sustainable homes may be formed from social referents' influence as previous empirical studies have found that individuals are more likely to act in accord with stated attitudes if such attitudes are consistent with the opinions of others (Ryan, 1982). Green attitude may also have an impact on perceived behavior control as individuals have favorable attitudes towards purchasing green and sustainable homes only if they exert full control of the behavior. In other words, the more resources and opportunities individuals think they possess, the more favorable the attitudes will be. Furthermore, others have argued that attitude and self identity are interrelated. There are studies which found that individuals who view themselves concerned with environmental issues are more likely to have favorable attitudes towards practicing environmentally responsible behavior (Raisbeck & Wardlaw, 2009; Smith & Paladina, 2010; Pino et al., 2012).

Previous findings showed that social influence from family and friends may have an impact on the perception of how difficult it is to perform the behavior of interest (Kim & Karpova, 2010). It is reasonable to believe that individuals' confidence in the ability to purchase green and sustainable homes may be influenced by opinions of family and friends. Additionally, individuals' personal responsibility for the environment may be due to perceived social pressure on individuals to perform the behavior. For example, if others express strong views that buying green and sustainable homes is socially desirable and beneficial to society, it is probably reasonable to expect such socially desirable behavior to match with house buyers' self-identity of engaging in green consumerism.

Individuals might be supportive of environmentally responsible behavior only if they have resources and opportunities to carry out the behavior. In other words, the more resources and opportunities that individuals have, the greater should be the expression of their self-identity of green consumersim. Given the preceding discussion, it could be hypothesized as follows:

H5: Attitude towards green and sustainable homes (A) is positively correlated to social referents' influence (SN) on green and sustainable homes

H6: Attitude towards green and sustainable homes (A) is positively correlated to perceived behavioural control (PBC) on green and sustainable homes

H7: Attitude towards green and sustainable homes (A) is positively correlated to perceived self-identity (SI) on green and sustainable homes

H8: Social referents' influence (SN) is positively correlated to perceived behavioural control (PBC) over green and sustainable homes

H9: Social referents' influence (SN) is positively correlated to self-identity (SI) in the matter of green and sustainable homes

H10: Perceived behavoural control (PBC) is positively correlated to self-identity (SI) in the matter of green and sustainable homes

3. Methodology

3.1 The Respondent

The respondents who are eligible to participate in the survey are potential homebuyers who are interested in new residential housing projects in Nusajaya. This residential area is selected in this study because Nusajaya is one of

five development zone within Iskandar Malaysia. In this study, respondents were invited to view the show house units by one of the leading real estate agencies specialized in marketing residential units on the secondary market in Nusajaya. In the effort to create reliable and valid responses from respondents who do not have adequate understanding about green and sustainable homes, an introductory letter was attached to explain the features of green and sustainable homes. Of 500 survey forms received, only 252 were used for the analysis due to missing information in the survey forms.

3.2 Methods

A series of statistical techniques were performed to measure house-buyers' intentions to purchase green and sustainable homes. SEM analysis using AMOS was used to estimate the measurement and structural model for quality and fit. For the measurement quality, confirmatory factor analysis (CFA) was conducted to assign variables to manifest a construct by determining reliability and validity of the items used. Once the constructs were identified and confirmed, H1 through H10 were tested through AMOS structural equation modeling (SEM), using maximum likelihood estimation with covariance matrix as the input. For a good model fit, established fit indices were used, namely goodness of fit (GFI), normed fit index (NFI), comparative fit index (CFI) and root mean square error (RMSEA).

3.3 Measurement Variables

The measures of psychosocial variables were adapted from measures contained in previous studies using 7-point scale. The following table showed the source and number of items of psychological constructs used in this study (Table 1).

Table 1. Questions used in the survey

Constructs	Items	Cronbach's Alpha	Reference
Purchase intention (PI)	8	0.926	Fielding et al (2008); Chan and Lau (2000); and Khalil et al. (2008)
Attitudes towards green and sustainable homes (A)	8	0.943	Fitzmaurice (2005); Fielding et al (2008); De Cannière (2009)
Social pressure from family and friends (SN)	6	0.923	Fitzmaurice (2005); Han et al (2010)
Perceived behaviour control (PBC)	5	0.832	Fielding et al (2008); De Cannière (2009)
Perceived self identify (SI)	7	0.913	Fitzmaurice (2005); Fielding et al (2008)

4. Results and Discussion

4.1 Descriptive Statistics

A descriptive statistics was performed to know the general socio-demographic characteristics of the respondents in this survey. Most of the total respondents were married (52.4 percent) and were Chinese (56.3 percent). As shown in Table 2, 59.1 percent of the respondents were males. Households with postgraduate education level comprised 9.5 percent of the sample, while 53.6 percent and 36.9 percent received college and secondary education respectively. The age group of the respondents in the survey was fairly distributed. 63.9 percent of the respondents had an average monthly income of RM 3,000 to RM 8,000 and 31.7% averaged less than RM 3,000. In terms of types of present dwelling, 69 percent of the respondents were currently living in terrace houses, 10.7 percent in high rise apartments, 14.7 percent in semi-detached houses and 5.6 percent in detached houses.

Table 2. Profile of respondents in the survey

Particular	Frequency	Percentage
Gender		
Male	149	59.1%
Female	103	40.9%
Ethnicity		
Chinese	142	56.3%
Malay	85	33.7%
India	25	9.9%
Age		
Below 30	90	35.7%
30-45	126	50%
Above45	36	14.3%
Marital Status		
Single	120	47.6%
Married	132	52.4%
Education		
Secondary/diploma	93	36.9%
College degree	135	53.6%
Postgraduate	24	9.5%
Income (monthly)		
Less than RM3000	80	31.7%
RM3000 to RM 8000	161	63.9%
More than RM8000	11	4.4%
Types of current residence		
High Rise	27	10.7%
Terrace	174	69%
Semi-detached	37	14.7%
Detached	14	5.6%

4.2 Measurement Model (Confirmatory Factor Analysis)

In order to fully assess the reliability and validity of the model, the initial measurement model was assessed via confirmatory factor analysis. As pointed by Fornell and Larcker (1981), construct reliability (CR) and convergent validity (VE) were tested for the measurement quality. As shown in Table 3, the CR and VE for each construct were above 0.7 and 0.5 respectively, suggesting sufficient reliability and validity of the measurement used. Based on the results from VE, discriminant validity could be measured. Following Fornell and Larcker (1981), the average variance expected (AVE) of the selected two constructs must be more than the square of the correlations between these two constructs. In this study, all AVEs were more than the respective square of correlations. Therefore, the constructs proposed had discriminant validity, indicating that all constructs were distinctive but correlated with one another. There was a clear implication that the latent variables of respective hypothetical concepts were converged in their respective factors. The indicators were then confirmed to manifest a specific construct, where the factor loadings were the highest. Indicators were then omitted from further analysis if they did not show a unique manifestation of a single factor.

Table 3. Results of confirmatory factor analysis

	Construct	L	VE	CR
	Attitudes towards green and sustainable homes (A)		0.729	0.931
B4	Green and sustainable homes are valuable because these homes are developed and constructed using environmentally friendly processes	0.825		
B5	Green and sustainable homes are sensible because these homes may not have a negative impact on the environment	0.822		
B6	Green and sustainable homes that meet Green Building Index (GBI) standards are favourable	0.861		
B7	Sustainable living features of green and sustainable homes are useful	0.901		
B8	Green and sustainable homes are beneficial because these homes may enhance our quality of life without sacrificing the internal comfort of the occupants	0.857		
	Social pressure from family and friends (SN)		0.762	0.905
C1	Most members of my family would expect me to buy green and sustainable home	0.822		
C2	I intend to follow the advice of my friends that I should buy green and sustainable home	0.901		
C3	My friends would recommend that I should buy green and sustainable home	0.893		
	Perceived behaviour control (PBC)		0.591	0.813
D2	I have a great deal of control in terms of resources and opportunities over whether I can buy green and sustainable home	0.768		
D3	It is easy to buy green and sustainable home	0.761		
D5	I felt a great deal of confidence about my ability to buy green and sustainable home	0.778		
	Perceived Self identity (SI)		0.711	0.881
E1	I think I will engage in environmentally friendly and ethical behavior owing to moral concerns	0.819		
E2	Engaging in environmental activities is an important part of who I am	0.884		
E3	I think of myself as someone who is very concerned with environmental issues	0.826		
	Purchase intention (PI)		0.728	0.889
F2	I am planning to buy green and sustainable home in future	0.821		
F4	I will try to purchase green and sustainable home in future	0.880		
F5	I will make an effort to purchase green and sustainable home in future	0.858		

4.3 Structural Model

The structural model showed adequate model fit according to established fit indices. The goodness-of-fit index (GFI) was above the acceptable threshold (GFI = 0.915) and the standardized root mean square error was below 0.08 (RMSEA=0.059). A good incremental fit measure denoted by normed fit index (NFI = 0.932), incremental fit index (IFI = 0.967) and comparative fit index (CFI = 0.967) was obtained in the model. As for parsimony fit index, the model reported normed χ^2 of 1.877, where the threshold was between 1 and 3. In short, the structural model could adequately measure and predict the causal relationships of the exogenous and endogenous variables.

H1 was supported because attitude toward green and sustainable homes had a positive causal effect on behavioral intentions (standardized coefficient = 0.258, t = 3.476), suggesting that house buyers who have more favorable attitudes toward green and sustainable homes have a higher intention to purchase green homes in future. This result implied that households' attitude toward benefits associated with green and sustainable homes are likely to lead to green housing purchase. These benefits include improving air and water quality, protecting biodiversity and the ecosystem, conserving natural resources and reducing energy use with green energy solutions.

Similar to the findings of Nigbur et al (2010), social referents' influence (H2) was not a significant predictor of behavioral intentions, suggesting the family and friends' opinions do not add to the prediction of intention to buy green and sustainable homes (standardized coefficient = 0.083, t = 0.999). This finding contradicts the previous findings of Ajzen (2002), Kim and Karpova (2010) and Smitch and Paladina (2010), which identified social referents' influence as a key predictor for behavioral intentions. One of the possible reasons is that the willingness to purchase green and sustainable homes is higher among house buyers who are more interested in

environmental issues and consider themselves as environmentally friendly. As a result, the influence of friends and family may not be one of the judging criteria of owning these homes. In fact, Raisbeck and Wardlaw (2009) showed that other people's opinions are not a major factor to persuade home builders to construct a sustainable home in Australia.

In line with the findings of Fekadu and Kraft (2001), Fielding et al. (2008), Nigbur et al. (2010), Stefano (2001) and Rise et al (2010), perception of the ease and difficulty of performing the behavior was a significant predictor of behavioral intentions (standardized coefficient = 0.180, t = 2.355). In the case of Malaysian households, lack of availability and high prices are perceived to be major obstacles to the purchase of green and sustainable homes.

In this study, individuals who identified themselves as environmentally concerned and environmentally conscious consumers were found to have more intentions compared to those who did not identify with these characteristics (standardized coefficient = 0.267, t = 3.647). The findings highlighted that consumers' environmental concerns have an impact on behavioral intentions towards green and sustainable homes. Previous research showed that consumers of green products were caused by the concern of environmental issues (Honkanen et al., 2006) and were more likely to participate in a variety of environmentally friendly behaviors (Williams & Hammitt, 2000).

As shown in Table 5, H5 – H10 were supported because all psychosocial variables were significantly and positively correlated. This result confirmed the previous findings that psychosocial variables had mutual relationship with each other. In the case of green and sustainable homes, attitude towards green and sustainable homes was significantly and positively related to the opinions of significant others on potential buyers, high control in the ability to purchase green and sustainable homes and identification of environmental consumerism with correlation coefficients of 0.536, 0.208 and 0.332, respectively; while social referents' influence was positively and significantly related to the ability to purchase green and sustainable homes and role of identification with green consumerism with correlation coefficients of 0.443 and 0.421, respectively. Additionally, the correlation coefficient of 0.379 suggested a moderately strong relationship between high control in the ability to purchase green and sustainable homes and identification of environmental consumerism.

As shown in the path diagram (figure 1), these six relationships between all psychosocial determinants were important to enhance the predictability of the theory of planned behavior as the total variance in buying intentions increased to 33%.

Table 4. Regression weights

Path	Unstandardized Estimate	S.E	Critical ratio	P value	Standardized Estimate
ATB->PI	0.273	0.079	3.476	0.000***	0.258
SN -> PI	0.083	0.083	0.999	0.318	0.083
PBC->PI	0.184	0.078	2.355	0.019***	0.180
SI->PI	0.307	0.084	3.647	0.000***	0.267

***p<0.05

Table 5. Correlation results

Relationship	Correlation's value	P value
ATB <-> SN	0.536	0.000***
ATB<->PBC	0.208	0.005***
ATB<->SI	0.332	0.000***
SN<->PBC	0.443	0.000***
SN<->SI	0.421	0.000***
PBC<->SI	0.379	0.000***

*** p<0.05

5. Conclusions

The concept of green homes requires an essential shift in attitudes and change in our habits. As reported in the

results, attitude towards green and sustainable home is a significant predictor of buying intention. Attitudes put people into a particular of mind liking or disliking things, and of moving towards or away from them. The more positive or favorable attitude towards green and sustainable homes, the more likely the person will purchase these homes.

The results also showed that house buyers are more likely to purchase green and sustainable homes when the resources and opportunities are readily available. In order to increase the accessibility of green and sustainable homes in the market, the government should provide subsidies in some green products and technologies so that the cost of building green housing will be reduced and this, in turn will reduce the price of green and sustainable homes. Furthermore, incentives such as tax exemptions on interests paid on mortgages should be given to house buyers who purchase green and sustainable homes. Malaysia still faces hurdles because some housing developers have concerns that going green is expensive. In response to high green development costs, house designers and architects should put efforts into fine-tuning the basic design or passive design to reduce reliance on high-technology products since sustainable homes do not always require the high-tech gadgetry. The emphasis of green and sustainable homes is placed on passive solutions such as insulation, shading and glass, all of which maximize natural lighting and cross ventilation of the building.

Perceived self-identity is another significant predictor of behavioral intentions of purchasing green and sustainable homes. It is advisable for housing developers to use a promotion concept that is related to the expression of self-identity among house buyers. These actions not only build a positive attitude towards green and sustainable homes, but also create the need to reflect their identities by owing them. The government and housing developers need to get house buyers to think about and feel good about their purchases in the hope that green homes will be so healthy and exciting that every house buyer will not want to purchase any other types of housing.

Although social referents' influence is not a significant predictor of behavioral intentions, it is positively and significantly related to green attitude, availability of resources and opportunities and expression of self-identity. The findings provided empirical evidence that the six additional paths are important extensions of TPB because they can help improve the ability of the theory to predict purchase intent towards eco-friendly homes.
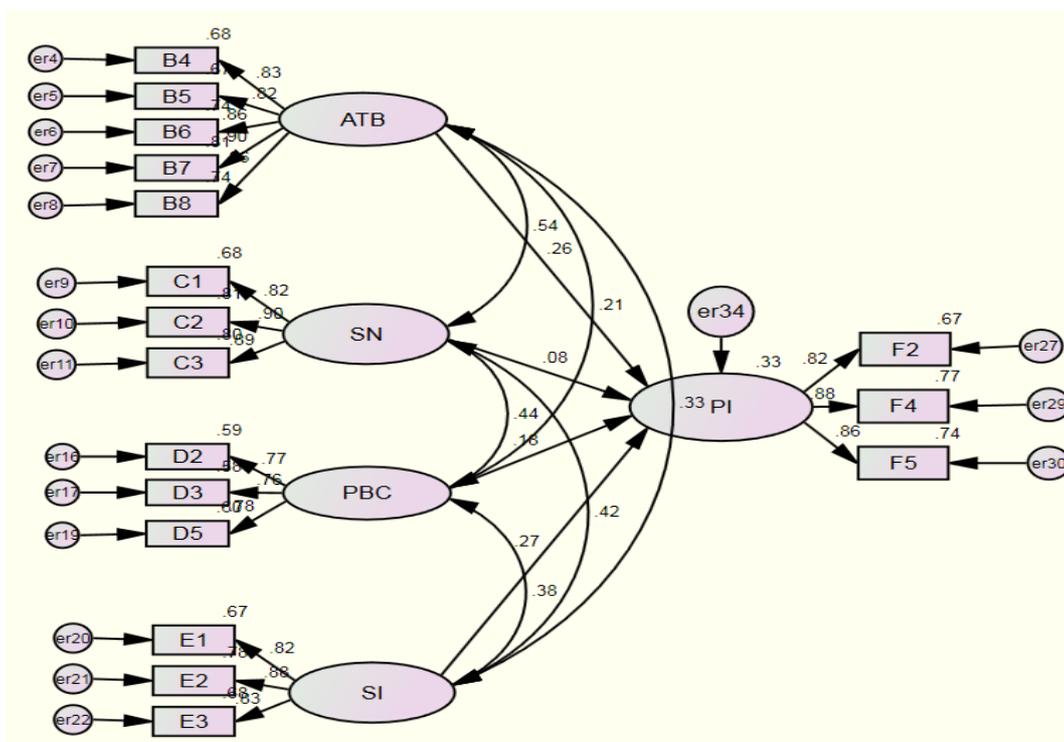

Figure 1. Path diagram

Acknowledgement

References

Ajzen, E., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior.* Englewood Cliffs, NJ: Prentice Hall.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*, 179-211. http://dx.doi.org/10.1016/0749-5978(91)90020-T

Ajzen, I. (2002). Perceived behavior control, self-efficacy, locus of control and theory of planned behavior. *Journal of Applied Social Psychology, 32*(4), 665-683. http://dx.doi.org/10.1111/j.1559-1816.2002.tb00236.x

Ajzen, I., & Madden, T. J. (1986). Prediction of goal-directed behavior: attitudes, intentions, and perceived behavioral control. *Journal of Experimental Social Psychology, 22*, 453-474. http://dx.doi.org/10.1016/0022-1031(86)90045-4

Alwitt, L., & Pitts, R. (1996). Predicting purchase intentions for an environmentally sensitive product. *Journal of Consumer Psychology, 5*(1), 49-64. http://dx.doi.org/10.1207/s15327663jcp0501_03

Arvola, A., Vassallo, M., Dean, M., Lampila, P., Saba, A., Lahteenmaki, L., & Shepherd, R. (2008). Predicting intentions to purchase organic food: the role of affective and moral attitudes in the Theory of Planned Behavior. *Appetite, 50*, 443-454. http://dx.doi.org/10.1016/j.appet.2007.09.010

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. http://dx.doi.org/10.1080/10548400903579746

Chan, R. Y. K., & Lau, L. B. Y. (2000). Antecedents of green purchases: a survey in China. *Journal of Consumer Marketing, 17*(4), 338-357. http://dx.doi.org/10.1108/07363760010335358

Cook, A. J., Kerr, G. N., & Moore, K. (2002). Attitudes and intentions towards purchasing GM food. *Journal of Economic Psychology, 23*, 557-572. http://dx.doi.org/10.1016/S0167-4870(02)00117-4

Davies, A., Titterington, A., & Cochrance, C. (1995). Who buys organic food? A profile of the purchase of organic food in Northern Ireland. *British Food Journal, 97*(10), 17-23. http://dx.doi.org/10.1108/00070709510104303

De Cannière, M. H., De Pelsmacker, P. D., & Geuens, M. (2009). Relationship quality and the Theory of Planned Behavior models of behavioral intentions and purchase behavior. *Journal of Business Research, 62*, 82-92. http://dx.doi.org/10.1016/j.jbusres.2008.01.001

Ezeanya, A. C. (2004). Malaysian housing policy*: Prospec*ts and obstacles of national vision 2020. *International Conference Toronto: Adequate & affordable housing for all,* 1-12.

Fekadu, Z., & Kraft, P. (2001). Self-identity and in Planned Behavior Perspective: past behavior and its moderating effects on self-identity-intention relations. *Social behavior and personality, 29*(7), 671-686. http://dx.doi.org/10.2224/sbp.2001.29.7.671

Fielding, K. S., McDonald, R., & Louis, W. R. (2008). Theory of planned behavior, identity and intentions to engage in environmental activism. *Journal of Environmental Psychology, 28*, 318-326. http://dx.doi.org/10.1016/j.jenvp.2008.03.003

Fitzmaurice, J. (2005). Incorporating consumers' motivations into the Theory of Reasoned Action. *Psychology & Marketing, 22*(11), 911-929. http://dx.doi.org/10.1002/mar.20090

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39-50. http://dx.doi.org/10.2307/3151312

Grunert, S., & Juhl, H. (1995). Values, environmental attitudes and buying of organic foods. *Journal of Economic Psychology, 16*, 39-62. http://dx.doi.org/10.1016/0167-4870(94)00034-8

Han, H., Hsu, L. T., & Sheu, C. (2010). Application of the theory of Planned Behavior to green hotel choice: Testing the effect of environmental friendly activities. *Tourism Management, 31*, 325-334. http://dx.doi.org/10.1016/j.tourman.2009.03.013

Honkanen, P., Verplanken, B., & Olsen, S. O. (2006). Ethical values and motives driving organic produce choice. *Journal of Consumer Behavior, 5*(5), 420-431. http://dx.doi.org/10.1002/cb.190

Khalil, M. N., Abu, S. E. A., & Michael, P. J. (2008). Internet banking acceptance in Malaysia based on The Theory of Reasoned Action. *Journal of information Systems and Technology Management, 5*(1), 3-14.

Kim, H., & Karpova, E. (2010). Consumer attitudes toward fashion counterfeits: application of the theory of Planned Behavior. *Clothing and Textiles research journal, 28*(2), 79-94. http://dx.doi.org/10.1177/0887302X09332513

Kim, S., & Littrell, M. A. (1999). Predicting souvenir purchase intentions. *Journal of Travel Research, 38*, 153-162. http://dx.doi.org/10.1177/004728759903800208

Koklic, M. K., & Vida, I. (2009). A strategic household purchase: consumer house buying behaviour. *Managing Global Transitions, 7*(1), 75-96.

Lea, E., & Worsely, T. (2005). Australians' organic food beliefs, demographics and values. *British Food Journal, 107*(11), 855-869. http://dx.doi.org/10.1108/00070700510629797

Madden, T. J., Ellen, P. S., & Ajzen, I. (1992). A comparison on the theory of planned behavior and the theory of reasoned action. *Personality and Social Psychology Bulletin, 18*, 3-9. http://dx.doi.org/10.1177/0146167292181001

Magnusson, M., Arvola, A., Hursti, U., Aberg, L., & Sjoden, P. (2001). Attitude towards organic foods among Swedish consumers. *British Food Journal, 103*(3), 209-226. http://dx.doi.org/10.1108/00070700110386755

Michaelidou, N., & Hassan, L. M. (2010). Modeling the factors affecting rural consumers' purchase of organic and free-range produce: a case study of consumers' from the Island of Arran in Scotland, UK. *Food Policy, 35*, 130-139. http://dx.doi.org/10.1016/j.foodpol.2009.10.001

Mohd, R. S., Jacqueline, J. P., Suhardi, W. M., & Shamsul, J. E. (2010). Factors affecting purchase intention of organic food in Malaysia's Kedah state. *Cross-Cultural Communication, 6*(2), 105-116.

Morwitz, V. G., Steckel, J. H., & Gupta, A. (2007). When do purchase intentions predict sales? *International Journal of Forecasting, 23*, 347-364. http://dx.doi.org/10.1016/j.ijforecast.2007.05.015

Nigbur, D., Lyons, E., & Uzzell, D. (2010). Attitudes, norms, identity, and environmental behavior: Using an expanded theory of planned behavior to predict participation in a Kerbside recycling program. *British Journal of Social Psychology, 49*, 259-284. http://dx.doi.org/10.1348/014466609X449395

Oliver, J. D., & Lee, S. H. (2010). Hybrid car purchase intentions: a cross-cultural analysis. *Journal of Consumer Marketing, 27*(2), 96-103. http://dx.doi.org/10.1108/07363761011027204

Oliver, R., & Bearden, W. (1985). Crossover effects in the theory of reasoned action: a moderating influence attempt. *Journal of Consumer Research, 12*(3), 324-340. http://dx.doi.org/10.1086/208519

Pino, G., Peluso, A. M., & Guido, G. (2012). Determinants of Regular and Occasional Consumers' Intentions to Buy. *The Journal of Consumer Affairs, 46*(1), 157-169. http://dx.doi.org/10.1111/j.1745-6606.2012.01223.x

Raisbeck, P., & Wardlaw, S. (2009). Considering client-driven sustainability in residential housing. *International Journal of Housing Markets and Analysis, 2*(4), 318-333. http://dx.doi.org/10.1108/17538270910992773

Ramayah, T., Lee, J. W. C., & Mohamad, O. (2010). Green product purchase intention: some insights from a developing country. *Resources, Conservation and Recycling, 54*, 1419-1427. http://dx.doi.org/10.1016/j.resconrec.2010.06.007

Rise, J., Sheeran, P., & Hukkelberg, S. (2010). The role of self-identity in the Theory of Planned Behavior: a meta-analysis. *Journal of Applied Social Psychology, 40*(5), 1085-1105. http://dx.doi.org/10.1111/j.1559-1816.2010.00611.x

Rizzo, A., & Glasson, J. (2011). Iskandar Malaysia. *Cities.*

Robbinson, R., & Smith, C. (2002). Psychosocial and demographic variables associated with consumer intention to purchase sustainably produced foods as defined by the Midwest Food Alliance. *Journal of Nutrition Education and Behavior, 34*(6), 316-325. http://dx.doi.org/10.1016/S1499-4046(06)60114-0

Ryan, M. J. (1982). Behavioral intention formation: the interdependency of attitudinal and social influence variables. *The Journal of Consumer Research, 9*(3), 263-278. http://dx.doi.org/10.1086/208922

Smith, S., & Paladina, A. (2010). Eating clean and green? Investigating consumer motivations towards the purchase of organic food. *Australasian Marketing Journal, 18*(2), 93-104. http://dx.doi.org/10.1016/j.ausmj.2010.01.001

Sparks, P., & Shepherd, R. (1992). Self-identity and the theory of planned behavior: assessing the role of identification with 'green consumerism. *Social Psychology Quarterly, 55*, 388-399. http://dx.doi.org/10.2307/2786955

Squires, L., Juric, B., & Cornwell, T. (2001). Level of market development and intensity of organic food consumption: cross-cultural study of Danish and New Zealand consumers. *Journal of Consumer Marketing, 18*(5), 392-409. http://dx.doi.org/10.1108/07363760110398754

Stefano, P. (2001). Self-identity and purchase intention: an extension of the theory of planned behavior. *European Advances in Consumer Research, 5*, 130-134.

Tan, T. H. (2012). Meeting First-Time Buyers' Housing Needs and Preferences in Greater Kuala Lumpur. *Cities, 29*, 389-396. http://dx.doi.org/10.1016/j.cities.2011.11.016

Tan, T. H. (2013). Satisfaction and Motivation of Homeowners towards Green Homes. *Social Indicators Research*. http://dx.doi.org/10.1007/s11205-013-0310-2

Williams, P. R. D., & Hammitt, J. K. (2000). A comparison of organic and conventional fresh produce buyers in Boston Area. *Risk Analysis, 20*(5), 735-746.

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