Pertanika J. Soc. Sci. & Hum. 25 (S): 191 - 202 (2017)

PERTANIKA JOURNALS

SOCIAL SCIENCES & HUMANITIES

Journal homepage: http://www.pertanika.upm.edu.my/

The Factors Associated with the Behavioural Intention of Eco-labelled Products

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ABSTRACT

The objectives of this research are to examine the: (i) direct effects of perceived critical mass, consumer confidence, and search cost on behavioural intention towards the consumption of eco-labelled products; (ii) direct effects of perceived critical mass and beliefs on consumer confidence towards eco-labelled products; and (iii) examine the indirect effects of perceived critical mass on behavioural intention towards the consumption of eco-labelled products, mediated by consumer confidence. It also studies the determinants of behavioural intention towards the consumption of eco-labelled products and clarifies the role of consumer confidence as a mediating factor influencing behavioural intention towards the consumption of eco-labelled products. This research adopted a cross-sectional survey method of 300 individuals whereby the data was used to test a research model using Partial Least Square-Structural Equation Modelling. Findings indicated that consumer confidence and search cost have a direct effect on behavioural intention towards the consumption of eco-labelled products. In addition, consumer confidence is explained by beliefs and perceived critical mass.

Keywords: Behavioural intention, consumer belief, consumer confidence, eco-labelled product, perceived critical mass, search cost

INTRODUCTION

Eco-labelled goods are used by businesses to distinguish their products from others, to position their products in the minds of consumers, and to deliver eco-friendly information (Bernard, Bertrandias & Elgaaied-Gambier, 2015; Dekhili & Achabou, 2014). Studies have shown the

ARTICLE INFO

Article history:
Received: 15 September 2016
Accepted: 30 December 2016

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ISSN: 0128-7702

positive relationship between eco-labelling and environmentally-friendly purchase intentions (Bernard et al., 2015; Rashid, 2009; Wahid, Rahbar, & Shyan, 2011). Although organic foods are expensive and limited in terms of their availability in addition to the existence of competing and overlapping organic standards and certificates (Chinnici, D'Amico, & Pecorino, 2002; Vermeir & Verbeke, 2006), eco-labelling has been shown to positively affect consumer intentions to purchase green products (Azizan & Suki, 2013).

Consumers may be motivated by environmental concerns, but the latter do not always lead to changes in purchasing behaviour (Tsarenko, Ferraro, Sands, & McLeod, 2013). Cost has been identified as a factor and as a predictor of consumer decision (Araral, 2013; Coggan, Whitten, & Bennett, 2010; Ofei-Mensah & Bennett, 2013). Thus, this study examines the effect of consumer perception and cost on behavioural intention of eco-labelled products. Specifically, this research aims to examine the (i) direct effect of perceived critical mass, consumer confidence and search cost on behavioural intention towards the consumption of eco-labelled products; (ii) direct effect of perceived critical mass and consumer beliefs on consumer confidence towards eco-labelled products; and (iii) indirect effect, mediated by consumer confidence, of perceived critical mass on behavioural intention towards the consumption of eco-labelled products.

LITERATURE REVIEW

Consumers' beliefs about eco-labels refer to the act or state of believing eco-labels (Sabbe, Verbeke, and Van Damme, 2008). Confidence refers to a buyer's overall confidence in eco-labelled products(Stanton & Paolo, 2012).

Perceived critical mass refers to the point at which a certain minimum number of users have adopted eco-labelled products so that the rate of adoption is favourable. It is "the point at which a certain minimum number of users have adopted an innovation" (Lee, Tyrell, & Erdem, 2013; Rogers, 1995). Whereas, search cost refers to the expenditure or cost of information searching and processing, as well as getting the eco-labelled products. Search cost is the effort and time involved in the process of finding eco-labelled products (Kim & Li, 2009).

Behavioural intention is a person's subjective likelihood of accomplishing a particular behaviour, and it is the deciding factor in actual behaviour (Abdul Rashid, Jusoff & Kassim, 2009; Yi, Jackson, Park & Probst, 2006). In this paper, behavioural intention towards the consumption of eco-labelled products refers to a consumer's intention to purchase (or intention to continue their current purchasing of, or intention to recommend) eco-labelled products in the future (Dwivedi, Khoumbati, Williams, & Lal, 2007; Venkatesh & Brown, 2001). A research model is proposed for empirical testing (Figure 1).

In previous studies, researchers noted that perceived critical mass was a predictor

of behavioural intention, while social influences were positively linked with an individual's behaviour. Furthermore, perceived critical mass indicated the level to which the user thought influenced people's shopping habits and it had a positive influence on intentions (Cheng et al., 2012). Lou, Luo and Strong (2000) stated that prospective adopters' awareness of whether modern technology has reached a critical mass of users might have a substantial effect on future usage. Studies also stated that perceived critical mass was considered to positively influence innovation usage, approval, intention to use, and behavioural intention (Lou, Chau & Li, 2005;Venkatesh & Morris, 2000). Therefore:

Hypothesis 1 (H1): perceived critical mass is positively related to consumer's behavioural intention towards the consumption of eco-labelled products.

Researchers identified that confidence was a predictive factor of consumer behavioural intention or consumer spending (Hosseinikhah Choshaly & Tih, 2015; Ludvigson, 2004; Smith & Sivakumar, 2004). Studies have indicated a positive relationship between confidence, one of psychological factors, and consumer behavioural intention or willingness to buy (Smith & Sivakumar, 2004; Haque, Sadeghzadeh & Khatibi, 2011). Therefore:

Hypothesis (H2): consumer confidence on eco-labelled products is positively related to his/her behaviour intention towards the consumption of eco-labelled products.

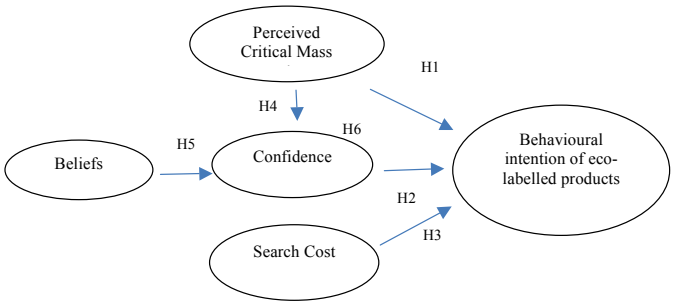

Figure 1. The proposed research models

Information search cost has an influence on consumer repurchase intention. When individuals have more information and knowledge regarding the product, it would lead to the reduction in data asymmetry occurrences, which in turn, results in increased purchase intention (Biswas, 2004). Research also indicated that when the consumers' perceived search cost decreases, their repurchase intention increases (Wu et al., 2014).

However, some studies show that higher search cost may not reduce behavioural intention of organic-labelled products.

Organic products are considered as a credence product (Wang & Tsai, 2014). In fact, a study showed the perceived availability of organic food did not have any effect on buying intentions and search cost was not an issue when considering making a purchase (Tarkiainen & Sundqvist, 2005). For regular consumers, cost involved in searching for organic products is not regarded as a barrier to organic food purchase. Barrena and Sanchez (2010) mentioned that despite the search costs involved in finding organic products, regular organic food buyers made better use of information cues and their purchasing intention was high.

Nevertheless, researchers have not confirmed the link (negative or positive) between search cost and consumer behavioural intention of eco-labelled products. It could be a negative relationship (Biswas, 2004; Wu et al., 2014), or a positive one (Barrena & Sánchez, 2010; Janssen & Hamm, 2012; Tarkiainen & Sundqvist, 2005). Therefore, H3, non-directive hypothesis, was proposed where consumer search cost is related to their behavioural intention towards the consumption of eco-labelled products.

The significant relationship between perceived critical mass and consumer confidence has been supported in the literature. Critical mass was an enabler for consumer trust and confidence in e-commerce (Jones et al., 2000). Besides, perceived critical mass in information technology (IT) communication field also enhanced users' confidence and beliefs in IT tools, which in turn, improved organisational relationship (Baile, 2006). It was found that a person might use communication technology based on the perception of the critical number of current users. The beliefs can be created throughout a person's relationships with other partners within the group, which may lead to the confidence of the user to adopt the new technology (Lou, Lou & Strong, 2000). Therefore, H4, perceived critical mass is positively related to consumer confidence towards eco-labelled products was proposed.

The relationship between consumer beliefs and confidence has been supported in literature (Flanagan, Johnston, & Talbot, 2005; Hosseinikhah Choshaly & Tih, 2015). In fact, different factors have different impacts on confidence level. Personal beliefs, for example, have an impact on confidence (Flanagan et al., 2005). Besides, Kleitman and Gibson's (2011) argument on metacognitive suggests that beliefs are a key predictor of confidence (i.e. self-confidence). In eco-labelling aspect, for example, the relationship between beliefs and confidence has also been supported (Hosseinikhah et.al, 2015). Therefore, it is likely that consumer beliefs on eco-labels are positively related to their confidence towards eco-labelled products and thus, H5 was proposed.

Perceived critical mass also influences behavioural intention towards the consumption of eco-labelled products indirectly through consumer confidence. First, perceived critical mass has an impact on confidence (Baile, 2006; Jones et al., 2000;

Lou, et.al, 2000). Consequently, consumer confidence has an impact on behavioural intention towards the consumption of eco-labelled products (Haque et al., 2011; Ludvigson, 2004; Smith & Sivakumar, 2004). In fact, perceived critical mass does not only translate into consumer confidence, it enhances the behavioural intention via confidence, a mediating effect. In the literature, there is evidence that perceived critical mass is directly or indirectly related to behavioural intention (Lou, Lou, & Strong, 2000; Rodger, 1995). Thus, it is indeed valuable to test the mediating effect of confidence. Hence, H6 was proposed: consumer confidence positively mediates the path between perceived critical mass and behavioural intention towards the consumption of eco-labelled products.

METHODS

A cross-sectional research design and survey was used in this research. A structured questionnaire consists of five studied variables was developed. The first variable was "beliefs", which consisted of ten measurement items adapted from Sabbe, Verbeke and Van Damme, (2008). The variable, "confidence", contained seven items that were adapted from Stanton and Paolo (2012), whereas, "perceived critical mass", comprised three items and were adapted from Lee, Tyrrell and Erdem, (2013). The variable, "search cost", had three items and were adapted from Kim and Li (2009), and the last variable, "behavioural intention of eco-labelled products", has 3 items that were adapted from Dwivedi et al. (2007). Demographic profile was also included. In terms of scale, a 7-point Likert scale (with 1, strongly disagree, to 7, strongly agree) was used in this study to measure the variables (Dalziel, Harris, & Laing, 2011).

This research focused on retail shoppers. Literature review suggested female shoppers outnumber their male counterparts (Aertsens et al., 2011; Ahmad & Juhdi, 2010; Tarkiainen & Sundqvist, 2005). Convenience sampling was used in this study and as this study was intended to test a research model without generalising research findings (Feild et al., 2006; Kai et al., 2013). In considering the sample size, the G Power Test was performed indicating that the sample size of 300 is acceptable; a minimum sample size of 129 would be needed for medium (0.15) effect size and the probability of alpha errors at 0.05. This is to calculate the adequate sample size of the study (Stanforth et al., 2011). A total of 300 respondents within or near hypermarkets in the Klang Valley area answered the questionnaire.

RESULTS AND DISCUSSION

Data was screened and examined using descriptive analysis. Based on the descriptive statistical analysis, there were 40% male and 60% female. Most of the respondents in this study were employed (31%), students (21.3%), and business owners (14.7%). The majority of them were between 21 and 40 years old (68.6%). Most of the respondents earned a monthly income of between RM2001 to RM5000 (55.3%). The majority

were degree holders (56%). Table 1 shows the result of correlation analysis. Data analysis indicates the items weigh highly on their own variables in the model, and the average variance shared between each variable and its measures are greater than the variance between the variable and other variables (Cheung & Lee, 2010; Hair et al., 2014). The correlation for each variable is less than the square root of average variance, which indicates satisfactory discriminant validity. Altogether, the measurement model exhibits satisfactory convergent validity and discriminant validity.

Table 1
Pearson correlation analyses

	CR	AVE	Beliefs	Confidence	Perceived Critical Mass	Searching Cost	Behavioural Intention
Beliefs	0.94	0.63	1				
Confidence	0.93	0.67	0.69**	1			
Perceived Critical Mass	0.93	0.81	0.28**	0.29**	1		
Search Cost	0.92	0.81	0.45**	0.42**	0.35**	1	
Behavioural Intention	0.95	0.86	0.56**	0.59**	0.32**	0.72**	1

**. Correlation is significant at the 0.01 level (2-tailed), n=300;
CR=Composite reliability; AVE=Average variance extracted.

In structural model analysis, each variable has variance inflation factor (VIF) values ranging between 1.09 and 1.33. Thus, collinearity among the predictor variables was not a concern in the structural model (Hair et al., 2010, 2014; Teh et al., 2010). The R^2 for confidence was 0.49 and the R^2 for behavioural intention of eco-labelled products was 0.63, indicating that perceived critical mass and beliefs explained 49% of the variance in confidence, whereas perceived critical mass, confidence, and search cost explained 63% of the variance in behavioural intention of eco-labelled products. Both values of the R^2 are regarded as substantial, which shows the strength of variables involved in the model. In order to test the relationships between the variables, path coefficients should be calculated. Bootstrapping with 500 replications from 300 cases, was used to obtain the path coefficients and their related t-values (Chin, 1998).

Table 2 shows the results of the structural model.

It indicates perceived critical mass ($\beta = 0.02$) was not a significant predictor of behavioural intention of eco-labelled products, thus H1 was not supported. On the other hand, confidence ($\beta = 0.34$, $p<0.01$) was positively related to behavioural intention of eco-labelled products, thus supporting H2 of this study. Meanwhile, search cost ($\beta = 0.56$, $p<0.01$) was related to behavioural intention of eco-labelled products, thus supporting H3 of this study. It had been identified that

perceived critical mass (β = 0.09, p<0.05) was a significant predictor of confidence, thus H4 was supported, whereas beliefs (β = 0.66, p<0.01) was positively related to confidence, thus supporting H5. In sum, H2, H3, H4, and H5 are supported in this study.

Table 2
Structural model path coefficients

Hypotheses	Relationship	B	Standard Error (STERR)	T-value	P-value	Decision
H1	Perceived critical mass →Behavioural intention	0.02	0.04	0.49	0.31	Not supported
H2	Confidence →Behavioural intention	0.34	0.04	7.96**	0.00	Supported
H3	Searching cost→Behavioural intention	0.56	0.03	16.30**	0.00	Supported
H4	Perceived critical mass →Confidence	0.09	0.04	2.20*	0.01	Supported
H5	Beliefs →Confidence	0.66	0.03	17.97**	0.00	Supported

Note: *p < 0.05, t-value greater than 1.645
**p < 0.01, t-value greater than 2.33

The hypothesis that perceived critical mass is positively related to consumer behavioural intention towards the consumption of eco-labelled products is not supported. This unexpected outcome might be due to the stronger indirect effects of perceived critical mass on behavioural intention, through consumer confidence. Earlier studies have indicated that perceived critical mass may indirectly influence behavioural intention towards the consumption of eco-labelled products through consumer confidence (Haque, Sadeghzadeh, & Khatibi, 2011; Jones et al., 2000; Lou, Lou & Strong., 2000; Ludvigson, 2004). Furthermore, the mean score of perceived critical mass in this study was 4.76 on a 7-point scale – not a particularly high score. In hindsight, respondents may have felt that the eco-labelled product community had yet to reach a point of genuine critical mass. The direct effects of perceptions of critical mass might become more obvious when such a point has been reached.

The other plausible explanation are other related factors (extended scope of this study), especially health and safety, which are more prominent in predicting behavioural intention of organic products. For instance, studies indicated that health issues were the main factors that affect consumer intention to buy organic products in Malaysia (Ahmad & Juhdi, 2010; Chong, 2013).

In this study, consumer confidence in eco-labelled products and search cost are positively related to behavioural intentions towards the consumption of

eco-labelled products. These findings are consistent with those of previous studies (Barrena & Sánchez, 2010; Janssen & Hamm, 2012) which point to a positive relationship between consumer search cost and behavioural intentions of eco-labelled products.

Nevertheless, perceived critical mass and consumer belief are positively related to consumer confidence towards eco-labelled products. This is consistent with literature findings, for instance, Jones et al. (2000) described critical mass as the enabler for consumer trust and confidence. Lou, Lou and Strong (2000) found that having a critical number of users can significantly influence the confidence of future users to adopt new technology. Flanagan, Johnston and Talbot (2005) examined the concept of confidence and its dimensions and noted that beliefs positively influence consumer confidence.

As for H6, an analysis of the mediating effects was conducted. Bootstrapping, a nonparametric resampling procedure, has been recognised as one of the methods for testing the mediating effect (Hayes, 2009; Zhao, Lynch, & Chen, 2010). Table 3 points out the results of bootstrapping, based on the structural model. It indicates that the indirect path (a*b) was significant at ($\beta = 0.03$, $p<0.05$), while the direct path was insignificant. Therefore, there was a full mediation; "indirect only mediation" that referred to the "full mediation" (Zhao, Lynch, & Chen, 2010).

Table 3
Results of mediation test

Relationship	B	Standard Error (STERR)	T-value
Indirect effect (indirect path a*b): Perceived critical mass → Confidence → Behavioural intention	0.03	0.01	2.00*
Direct effect: Perceived critical mass → Behavioural intention	0.05	0.04	1.35

Note: *p < 0.05, t-value greater than 1.645
**p < 0.01, t-value greater than 2.33

This mean consumer confidence positively mediates the path between perceived critical mass and behavioural intentions of eco-labelled products. This finding confirms that of previous studies indicating that perceived critical mass has an impact on confidence and, in turn, the latter impacts on behavioural intentions of eco-labelled products (Baile, 2006; Jones et al., 2000; Lou, Lou, & Strong, 2000; Ludvigson, 2004; Smith & Sivakumar, 2004).

CONCLUSION

The findings of this study showed that beliefs and perceived critical mass are significant in determining consumer confidence towards eco-labelled products. Search cost and consumer confidence were significant in determining consumer behavioural intentions of eco-labelled products. Perceived critical mass, on the other hand, had no significant direct effect on such intentions, but rather was shown to influence these indirectly, through consumer confidence. Building on the research findings, marketers could for example create eco-labelled product membership programmes or user clubs to generate greater perceived critical mass. This could also encourage spontaneous word-of-mouth communication among users. Higher levels of communication among eco-labelled product user groups should increase consumer confidence, and with it, consumers' intention towards the consumption of eco-labelled products.

Search cost does not in fact reduce behavioural intentions of eco-labelled products. Instead, this study found that, if anything, higher search cost may lead to a greater motivation towards purchasing eco-labelled products. Nevertheless, marketers should remain alert to the search cost issue. Although serious eco-consumers appear to be willing to invest in eco-labelled products despite the costs involved, in order to increase demand and the market for such products, more marketing efforts may be necessary to make the products, and information about them, easily accessible to consumers.

In conclusion, this study has provided valuable information on the predictors of behavioural intentions, that is, buyer's motivation and willingness to purchase, continue to purchase or recommend eco-labelled products in the future. Knowing these predictors better should help managers and marketers to build strategies to increase consumer interest in and actual purchases of such products. Future studies could consider adopting stratified sampling method to investigate specific target population as well as collaborate with retail outlets such as organic stores. Using the membership databases of such entities could help to enhance the generalisability of the findings.

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