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Evaluating the Role of Energy Efficiency Label on Consumers' Purchasing Behaviour

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Abstract

This paper was designed to explore the influence of energy labelling toward the consumer purchasing behaviour. Based on information from a total of 117 samples, this paper finds mean correlations between consumers' awareness, knowledge, attitude, social norm and energy efficiency labels with purchase intention. Energy labelling shows a negative correlation with green purchasing behaviour. This finding demonstrates that energy labelling was fruitless to deliver a good message in encouraging consumer buying decision. Energy labels have to be understood, trusted and valued as a tool for consumers' decision making. It is believed that the use of energy labels alone is not considered enough to protect the environment. Thus, all the stakeholders should enhance some other factors as a complementary to the energy labelling programs.

1. Introduction

Presently, rapid urbanization and population growth has raised the demand for electricity in many developing countries. International Energy Agency (IEA) estimated the percentage of consumption of

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electricity in overall energy consumption has rapidly increased in recent 30 years among the world (IEA, 2010). The United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), 2011 also revealed that the world's primary energy demand is expected to account for around 87% of the growth by 2030. The fact that more electricity is required to be generated is placing increasing pressure on upstream energy resources such as crude oil, coal and natural gas, the reserves of which are being depleted. According to many recent studies, a key driver in energy consumption by the households in developing countries is the fact that people in these countries can now live in a comfortable life, using new home appliances such as heaters and air-conditioners (Gleneagles, 2005: Tucker et al., 2008). ERA Consumer Malaysia (2002) stated one of the crucial areas that reflect the changing consumption pattern is the demand for energy. Household electricity consumption has continued to grow with increasing per capita income, resulting in the ownership of household appliances like air-conditioners, refrigerators, dishwashers, microwave ovens, washing machines and television sets. A study on household energy consumption in Johor, Malaysia found high ownership level of household appliances such as television (100%), refrigerator (99%), washing machine (96%), rice cooker (95%) and ceiling fan (93%) (Kubota et al, 2011).

IEA reported that the consumption and generation of electricity not only put pressure on the energy resources but on the other hand emit greenhouse gases (GHG) such as carbon dioxide (CO_2), carbon monoxide (CO) and nitrogen oxide compounds (NOx). Energy sectors are responsible for approximately 65% of GHG emissions generated by human activities (IEA, 2009). As a part of GHG reduction program, energy efficiency policy is now being promoted worldwide. Since the 1990s, some programs to improve energy efficiency have been conducted in developing countries. Malaysia, through Ministry of Energy, Green Technology and Water (MEGTW) and Energy Commission (EC) of Malaysia in 2005 has introduced the energy efficiency and labeling program in an effort to promote culture of voluntary improvement amongst manufacturers. This action is supported by introducing the eco-labeling programs called ENERGY STAR rebate program in 2011. This program is initiates to improve energy efficiency in the country. In relation with the programs, the forth schedule of Malaysia Electricity (amendment) regulation 2013 has mentioned about the minimum energy performance standards (MEPS) for the purpose of energy efficiency use should be at least 2 star MEPS's value. Until now, this standard is applicable to refrigerator, air conditioner, television, domestic fan and lighting.

The energy labelling plays a significant role in shaping consumers' choice for energy efficient products and appliances since it provides consumers with additional information on products characteristics. Thus, labelling instruments are a crucial tool to ensure that the producers for energy efficient products to increase their market share. However not many studies have been done on how consumers' purchasing behaviour for energy efficient products is actually affected by the information available in energy labelling programs. Thus, the main focus of this study is to understand consumer attitude and behaviour related to the energy efficient products and appliances. This is accomplished by applying the theory of reasoned action in the context of energy efficient products purchases. The ultimate goal of this study is to further understand how the energy labelling program would influence consumer knowledge, awareness and purchasing behaviour.

2. Theoretical framework

The theory reasoned action (TRA) posits that the strongest predictor of individual's behavior is one's behaviour intention (Fishbein and Ajzen, 1975). Behavioral intentions are thought to be the result of both an individual influence and a normative influence. The individual influence on intention is a person's attitude toward performing the behavior. The normative influence on intention is referred to as one's subjective norm. This theory may be particularly useful for predicting behavior in the energy-saving industry because in this context consumers often decide to perform behaviors that they can associate with the desired outcome (Bang

et al., 2000). For example, a consumer may have a favorable attitude toward an inexpensive television and may view that option as more affordable. However, while looking at different alternatives, they may decide on the high performance television. The final intention to purchase this particular product (even though it may often be a more expensive option) may be influenced by beliefs about the positive consequences of purchasing this product (in an environmental where the issue of global warming gains increasing prominence) and the individual's level of motivation to comply with those normative beliefs (Hansen, 2004: Ha and Fanda, 2012). Specifically, this study considers identifying and tests five antecedents of green purchase intention, namely: environmental knowledge, environmental awareness, environmental attitude, peer pressure and energy label. Based on TRA model, research framework shown as Figure 1 and the study hypotheses are as follow:

  H1: consumer knowledge is positively related to behaviour intention.
  H2: environmental awareness is positively related to behaviour intention.
  H3: attitudes toward energy efficient products are positively related to behaviour intention.
  H4: peer pressure will positively affect behavioural intention.
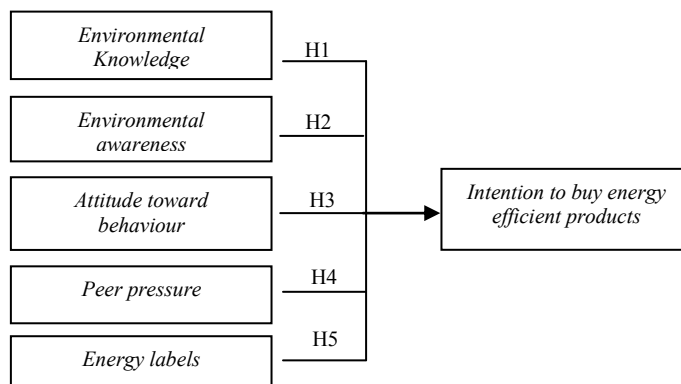 H5: energy labelling will positively affect behaviour intention.

Fig. 1. Research framework

3. Methodology

The data employed in this paper comes from a survey conducted among consumers in the three urban areas in Selangor, which is Shah Alam, Petaling Jaya and Bangi. Direct face to face interviews with respondents were undertaken during the survey. Cooper (2002) points out that a direct face to face interview is more reliable approach in contingent valuation studies. The face to face interview offered one-on-one interactions with the consumers and provided an opportunity to explain some of the questions to respondents with low literacy levels. This method was vital to ensure high reliability and accuracy of the data collected. Using convenient sampling, 117 consumers were selected from these three urban areas to participate in the survey as these areas are representatives of the major urban consumer market in Selangor.

4. Results

Based on the above objective, this study applied Pearson Correlation to understand the relationship between environmental knowledge, awareness, attitude, peer pressure and energy labels with green purchasing behaviour. The results in Table 1 shows that there were positive significant (r=0.267, p=0.004) relationship between the environmental awareness and consumer buying intention. Consumers that are more

sensitive toward the environmental issue will have more effort to purchase energy efficient product that are less energy consuming and safe for the environment. The results correspond with past studies (Ha and Fanda, 2012; Nabsiah et al., 2011; Mohammad, 2006 and Kaiser et. Al, 1999) which view consumer's environmental concern and awareness being positively related to green purchasing behaviour. Consumer knowledge demonstrates a direct relationship with the purchasing behaviour. The consumer that have high environmental knowledge shows higher intention to buy energy efficient products which they belief that the product will benefit for energy conservation and environmental sustainability. Social norm shows higher correlation (r=0.399 and p=0.001) compare other variables with the consumer intention on purchasing energy efficient products. Consumer's social pressure like friends, family and societies are important in influencing consumers' purchasing decision. This result supported study by Mei et al. (2012) which shown a significant of peer pressure toward people purchase of green products. However, the result found as contradict with findings by Ha and Fanda (2012) which social norm did not significant with behaviour intention. Energy labels shown as correlate with the purchase intention but in a negative way (r=-0.184, p=0.047). This refers as an energy label is fruitless to encourage consumer on buying energy efficient products.

Table 1. Pearson Correlation Results

Variables	Pearson correlation	Sig. (2-tailed)
Consumer's awareness	0.267**	0.004
Consumer's knowledge	0.252**	0.006
Consumer's attitude	0.299**	0.001
Social norm	0.388**	0.001
Energy Labels	-0.184*	0.047

** correlation is significant at the 0.01 level (2-tailed)
*correlation is significant at the 0.05 level (2 tailed)

5. Discussion and conclusion

This study applied TRA framework to understand consumer's purchasing decisions related to energy efficient products. This study is pertinent in today's environment as the recent spike in global energy prices and growing concerns for the nonrenewable resource has led consumers toward looking for more energy saving products. A sample of respondents in Selangor, Malaysia as one of the economically fast growing state is utilize looks at the effect of attitude and subjective norm as a basis on behavior intention. A notable finding of the research is that even though both attitude and social norm had significant effects on purchase intention as the TRA would suggest, the effect social norm on purchase intention is much stronger (r=0.39, p=001) than the effect of attitude on purchase intention (r=0.29, p=0.001). Therefore, the focus of strategy of marketers has to be utilizing by giving clear information about the products by informative advertisement and make more people familiar about energy efficient products in the market. Since environmental knowledge has a significant relationship with purchase intention, marketing strategies then have to focus on increasing the knowledge of consumers especially in terms of the detrimental effects of the non-environment type of products. The implication of this finding in this context is understands as the lack of clear information about the products has been cited as a challenge faced by consumers. Lack of familiarity with the energy labels also contribute to the low level of knowledge and low benefit will generated from the programmes toward consumer awareness to energy efficient products. Study also found cost of the product has also one of the factors to be considered in purchasing decision. So it is the duty of the government to create a good climate in which the consumer could get some purchasing power. Public financing is essential to jump start a green economic transformation, since cost is still major concern of consumer especially for lower income group to purchase green products innovation.

Acknowledgement

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