Using Extended Model of Theory of Planned Behavior to Predict Purchase Intention of Energy Efficient Home Appliances in Pakistan

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Abstract

Government and private sectors of Pakistan have witnessed a huge gap in the demand and supply of energy, encouraging companies to introduce energy efficient products into the market. This led to boost in the demand of energy efficient home appliances. Energy efficient home appliances are the important sources of energy saving and help to reduce carbon emissions into the environment. The purpose of this study is to develop a theoretical framework of consumers' purchase intention of energy efficient home appliances. Four important constructs of purchase intention have been added into the theory of planned behavior such as consumers' knowledge of eco-labels, green trust, environmental concern and functional values. Purposive sampling technique has been used to assess data collected by a questionnaire survey. The Partial Least Square (SEM) was employed to analyze hypothesized model. The findings of the study reveal that consumers' knowledge of eco-labels, environmental concern and perceived consumer effectiveness are the important predictor of purchase intention. However, the positive relationship between green trust and products' functional value is insignificant. It is believed that consumers' are skeptical about products' functional benefits. Therefore, marketers should focus on developing green trust related to products' attributes. Moreover, the results of the study would be helpful in understanding consumers' behavior towards the purchase of green products in developing markets.

Key words: Eco-labels, green trust, Environmental concern, perceived consumer effectiveness and purchase intention.

Introduction

Global Warming generates serious challenges for marketers and practitioners around the globe. It is observed that hazardous production processes by the industries have contributed to environmental pollution. Since 1960, companies and consumers have realized the importance of sustainable consumptions. As a result, a new segment of consumers emerged namely green consumers. Green consumers have the tendency to reduce purchasing, recycle products, and use less polluting products (Gilg, Barr & Ford, 2005). Companies have committed to maintain harmony with nature by reducing unsustainable manufacturing processes and targeting green segment by offering eco-friendly products (Zinkhan & Carlson, 1995). However, the number of green consumers did surge owing to different

factors. Sheth, Sethia and Srinivas (2011) posit that numbers of factors are responsible for the reluctance of consumers towards the acceptance of eco-friendly products: trust deficit, high prices of green products, ineffective marketing strategies, and companies' inferior product quality adversely contribute to it. Many factors are essential and effective to elicit a positive response from consumers such as consumers' concern for the safety of the environment, a feeling of responsibility, and green purchase behavior (Chan, 2014). Thus, it is needed for the marketers to understand and grasp consumers' demand for green products (Hameed & Waris, 2018). Creating demand for green products involves multifaceted strategy ranging from identifying consumers' need for the green products to understanding psychographic variables. Companies are committed to establishing harmony with nature by reducing unsustainable production processes and providing the impetus for the consumption of green products (D'Souza, Taghian, Sullivan & Gilmore, 2015).

Recent studies reveal that consumers' irrational energy consumptions lead to environmental pollution and degradation of resources (Rafique & Rehman, 2017; Meng, Yang, Chung, Lee & Shao, 2018). Tan et al. (2017) argued on the importance of energy reduction and stressed consumers' responsibility towards sustainable consumption. A recent study, in the context of Pakistan, reveals those household consumers' energy consumption accounts for 85%, and the situation is further aggravated by the addition of new consumers in the national grid (Ali, Ullah, Akbar, Akhtar & Zahid, 2019). Prevailing circumstances have necessitated conserving energy through effective and prudent measures. The sale of home appliances (Refrigerators, TVs and Washing machines) in Pakistan has seen a huge boost because of a growing middle-class segment (SBP, 2018). Using energy efficient home appliances helps reduce energy consumption and minimizes carbon footprint on environment (Khan & Pervaiz, 2013). Energy efficient home appliances may help minimize carbon footprints and live in harmony with nature.

Contribution of the Current Research

This study aims to contribute in the literature of green marketing by including novel constructs such as knowledge of eco-labels, environmental concern, products' functional values and green trust into the theory of planned behavior. Ajzen (1991) recommended that TPB can be extended in other contexts provided that it will contribute to the literature. He suggested the parameters of adding additional variables into the theory of planned behavior. First, additional variables should have a crucial impact in the decision making of consumers regarding products' selection. Second, only independent variables can be added to estimate the model. Third, variables should have an impact on consumers' behavior in the given context. All the novel constructs have vital role in the decision making of the consumer regarding the purchase of green products. Rios, Martinez, and Molina (2008) argued on the significance of product information in an experimental study and stressed its need in the formation of attitude towards new products. Eco-labels are an important source of credible information to consumers. Therefore, knowledge of eco-labels has been given ample consideration in the previous studies (Taufique, Vocino & Polonsky, 2017; Thøgersen, 2002; Sitarz, 1994). Moreover, this study has given attention to perceived consumer effectiveness which is an important antecedent of green products' purchase intention. Consumers' trust is also an important predictor of green products usage and it can be enhanced through proper communications and trustworthy channels. Credibility and trustworthiness of an organization would be helpful to translate perception into the actual purchase of products. Previous studies revealed that skeptical consumers have avoided purchasing of green products because of misleading claims made by the organizations. As far as functional value of green products is concerned, it is associated with the attributes of products that offer environmental benefits. Tan et al. (2017) emphasized on the need of understanding household consumer behavior towards energy usage. Energy consumptions by household consumers have been well studied in the developed markets such as Australia (Gadenne, Sharma, Kerr & Smith, 2011), Switzerland (Tanner & Kast, 2003), Sweden (Ek & Patrik, 2010), the Netherlands (Abrahamse & Steg, 2009), UK (Pothitou, Hanna & Chalvatzis, 2016), and the US (Niemeye, 2010). However, literature is limited regarding households energy consumptions in the developing markets, where the rise in the demand of energy is estimated to be increased by 30% in 2040 (Ali et al., 2019). This study would be helpful for organizations and practitioners plan strategies that attract maximum consumers towards sustainability of environment and boost the sale of green products. The structure of the paper is as follows: the first section of the paper describes the introduction about the topic and importance of TPB additional constructs. The Second part is related to the literature review and hypotheses development. Third section illustrates the methodology applied in this study. Fourth section is the analysis of results. Lastly, it discussed the conclusion and discussion, and limitation and future research in green marketing.

Literature Review and Hypotheses Development

Functional Values

The core of any product that influences consumers' decision for the purchase of products is called functional value. Sheth, Newman and Gross (1991) posit that it is the perceived satisfaction that derives from the physical

attributes of the products. Products' physical benefits are the most important factors that determine consumers' purchase decision (Nowlis and Simonson, 1996). Suki and Suki (2015) findings suggest that the functional quality of products is an important feature of consumer purchasing. In relation to green products, it is the perceived utility that is derived by the consumption of utilitarian and salient benefits (Lin & Huang, 2012). Recently, a study conducted by Tan et al. (2019) revealed that consumers' purchase of energy efficient refrigerator was influenced by the products' feature such as environmental benefits, price and durability. Across all products category, consumers' purchases for green products were influenced by the environmental benefits of the products (Huang et al., 2014; Leonidou et al., 2010; Alwitt & Pitts, 1996). Particularly, in a scenario where consumers' feel that their pro-environmental behavior would lead to the betterment of environment, are more likely inclined to purchase eco-friendly products such as energy efficient appliances (Barbarossa and De Pelsmacker, 2016; Gaspar and Antunes, 2011; Tanner and Kast, 2003). Hence, above discussions provide enough support to the effectiveness of products' functional values to influence consumers' attitude and decision for the purchase of energy-efficient home appliances. Therefore, we hypothesized that:

H1: Functional values of energy efficient products will positively influence consumers' attitude.

H2: Functional values of energy efficient products will positively influence consumers 'purchase intention.

Consumers' Attitude towards Green Products

Attitude refers to an individual's favorable and unfavorable tendency towards an object, individual or situation, developed through mental processes and individual experiences (Ajzen, 1991). Newhouse (1991) supported this perspective and defined that it is an evaluation of an individual's positive and negative emotion under certain circumstances. In relation to energy products usage by household consumers, attitude is the tendency of consumers to save energy, which is influenced by energy saving behaviors (Wang, Zhang & Li, 2014). According to the previous researchers in the domain of environmental marketing, environmental issues were found an important and significant antecedents of energy saving behavior (Ek & Soderholm, 2010; Akehurst et al., 2012). Many studies have confirmed the positive relationship between attitude and intention to purchase energy-saving products (Tan et al., 2017; Wang, Wang & Guo, 2016; Gadenne, Sharma, Kerr &Smith, 2011; Abrahamse & Steg, 2009; Greaves, Zibarras & Stride, 2013).

H3: Attitude towards green products will positively influence consumers' green purchase intention.

Consumers' Green Trust

Trust is the outcome of three important elements that are ability, benevolence and integrity, it is the hope that other party would perform on agreed commitments (Rotter, 1971; Schurr and Ozanne, 1985). Hart and Saunders (1997) posit that it is the degree of confidence and faith on the commitment of another party expected behavior. Martínez (2015) examined the antecedents of green loyalty and found that companies overall green image has a positive impact on green trust. Another study revealed that selection of products and services, and consumers' willingness for future purchase depends upon the trust and products attributes (Fishbein, 1963), which are the considered an integrated aspect of green products. Alaszewski (2003) postulated that trust is an essential element that helps to reduce the perceived risk associated with the products. A study conducted by Mukherjee and Nath (2003) revealed that customer overall evaluation of firms performance influenced by trust. Atkinson & Rosenthal (2014) argue about deceptive advertisement claims by companies regarding green products and observed consumers have a less proclivity for products which they thought lacking credibility. Delmas and Lessem (2017) noted that message and attributes of the green products have vital importance in the selection of product. The study of Kalafatis and Pollard (1999) reported that some companies have exaggerated their products' environmental performance that led many consumers skeptical and reluctant towards companies. It has been observed that trust was an important aspect consumer willing to buy environment friendly products Chen (2010). Hall and Vredenburg (2005) suggested that firms need to work on building consumers' confidence by incorporating environmental attributes in their production processes and divesting hazardous production facilities.

H4: Consumers' trust for energy efficient products will positively influence functional values.

H5: Consumers' trust for energy efficient products will positively influence environmental concern.

Influence of Eco-labels

Consumers' general knowledge about environmental issues is not a good predictor of pro-environmental behavior (Polonsky, Vocino, Grau, Garma, & Ferdous, 2012; Laroche, Bergeron, & Barbaro-Forleo, 2001; Ajzen, 1985). Thøgersen (2000) argued that results are inconsistent between consumers' general environmental information and pro-environmental behavior. Hence researchers proposed context-related information more relevant and effective to elicit proper consumer response (Testa, Iraldo, Vaccari, & Ferrari, 2015; Minton & Rose, 1997). Past studies have focused on general information of consumer and attitude towards green products (Oreg & Katz-Gerro, 2006; Flamm, 2009). Though some studies have given attention to specific environmental knowledge on consumer attitude. In this

regard, Polonsky et al. (2012) emphasized the importance of carbon off-set knowledge, and argued that both general knowledge and specific knowledge lead to environmental behavior.

H6: Eco-labels will positively influence consumers' attitude towards energy efficient home appliances.

Underwood and Ozanne (1998), defined the importance of packaging for the consumers and termed as it speaks to consumers by providing relevant information. Because consumers always rely on products information when they make purchase decisions. Therefore, the message about attributes on the label serves an important predictor for the purchase of the product. Silayoi and Speece (2007) argue that product packaging is the key to successful marketing strategy. Marketers communicate environmental friendly products attribute through eco-labels. Thøgersen (2002) posit that eco-labels are an important mean of delivering transparent messages about environmental benefits to consumers. Sitarz (1994) has argued that eco-labeling has been one of the most important communicating tools that help to enhance sustainable consumptions. It promotes environmental sustainability without compromising consumers' choice of products' selection and information costs, increases the probability of actual product consumption (Grunert & Wills, 2007).

H7: Eco labels will positively influence functional values of energy efficient home appliances.

The environmental attributes of a product signal high credence values, often making it difficult for consumers to assess the veracity of environmental claims. Products functional values, regarding environment, is an important characteristic (Testa et al., 2015; Atkinson & Rosenthal, 2014), that make it difficult for a consumer to test accuracy of the claims. For example, consumers are uncertain about claims made by firms regarding environmental attributes of products; this may result in consumers' confusion and diminish the veracity of environmental claims (Testa et al., 2015). Such uncertainty and confusion may be diminishing through developing consumers' trust via support of third-party eco-labels. Previous findings suggest that consumers do not trust on eco-labels designed and promoted by firms (Oates et al., 2008). That is why firms seek the support of third-party environmental auditor to assess the production facilities and formulate more sustainable and effective environmental policy (Harris 2007; Grankvist, Dahlstrand, Biel, 2004). Previous studies in the area of green marketing provide ample pieces of evidence related to eco-labels effectiveness in molding consumers' attitude and developing trust towards sustainable products. Hence, it can be assumed that labelling is one of the most important marketing strategies that help build consumers' trust regarding energy efficient products. Therefore, we hypothesized that:

H8: Eco-labels will positively influence consumers' trust for the energy efficient home appliances.

Environmental Concern

Wei at el. (2017) investigated green consumption and defined that it includes various aspects of sustainability which ensure the safety of the planet. Manufacturer of green products can make products after the identification of factors that influence consumer decision-making process. Consumers have a deep emotional engagement to the safety of the environment that could help in pursuance of products which less damaging to the environment. Sheth at el. (2011) argue that human actions have depleted many natural resources such as fisheries, deforestation, soil erosion and biodiversity. Xie, Bagozzi, and Grønhaug (2015) explained that consumers who have high regard for the sustainability of environment will support green initiatives and condemn companies that are involved in environmental degradation. Polonsky (2011) posit that environmental concerns have become the part of business and marketing literature over the years. Many researchers have supported the argument related to the environmental issue and its significance in the life of an individual. They posit that consumers' decision making for the selection products are often dependent of environmental values (Stafford &Stafford 1994; Kilbourne & Beckmann 1998). Leonidou, Katsikeas and Morgan (2013) noted that companies use a variety of tools to communicate with the consumers' regarding environmental claims to maintain sustainable relationship. Green promotion strategies of the companies include environmental packaging, portraying environmental image through advertising and making efforts to publicize environmental claims. Thøgersen (2004) defined that environmental concerns have a huge significance in the consumers' decision making, and it varies as per the evaluations of the products and services with their degree of effect on the environment. For example, users of cars have a different opinion, and have serious concern related to auto pollution on environment than the consumers' conscious about recycling and water usage (Kahn, 2007). Above discussions portraying the significance of environmental concern on consumers' decision making regarding the purchase and consumptions of sustainable products. Hence, it can be concluded the consumers' concern for the environment will influence their decision towards the adoption of energy efficient home appliances. Thus, we hypothesized that:

H9: Environmental concern will positively influence functional value energy efficient home appliances.

H10: Environmental concern will positively influence perceived consumer effectiveness for the adoption of energy

efficient home appliances.

Perceived Consumer Effectiveness and Green Purchase Intention

Perceived consumer effectiveness is one of the most important and crucial antecedents in the studies of green marketing. According to Bandura, Adams, Hardy, and Howells (1980), the individual ability is measured by the level of his confidence of performing behavior. Zhou, Thogersen, Ruan, and Huang (2013) noted that individual ability and motive determines particular behavior. They stressed that an individual's who believed that he might not be able to perform particular a behavior is due to lack of required skills, unlikely transform into behavior. In green marketing literature, there have been strong and positive link between PCE and behavioral intention. For example in the context of green hotels (Han, Hsu & Sheu, 2010; Chang, Tsai & Yeh, 2014), organic foods (Tarkiainen and Sundqvist, 2005), recycling (Taylor and Todd, 1995), green products in general (Moser, 2015) and conservation (Albayrak, Aksoy, & Caber, 2013). Past studies have shown consumers' ability to change behavior for the sake of betterment outcomes. Researchers have conducted their study on consumer general behavior as an outcome of their beliefs. People, who believed that their actions could bring a crucial change in general behavior, have demonstrated effectively (Ellen, Weiner, & Cobb-Walgren 1991; Wesley, Lee & Kim, 2012). Kinnear, Taylor, and Ahmed (1974) explained that consumers' effectiveness an important factor for ecological behavior. Later, Webster (1975) refined the effectiveness measures and argued that consumers' degree of involvement has meaningful impact of consumers' consumption behavior. In relation to this, Robert (1996) found that perceived consumer effectiveness an important predictor of environment friendly consumer behavior that would be helpful to bridge the gap between attitude and behavior in the context of green marketing. Several studies have conducted in the context of green marketing validated the effectiveness perceived consumer effectiveness to support environment friendly behavior (Kang, Liu, & Kim, 2013; Ellen et al., 1991). From the above discussion, it can be predicted that perceived consumer effectiveness will lead towards consumers' intention for the purchase of energy efficient home appliances. Hence, we hypothesized that:

H11: Perceived consumer effectiveness will positively influence consumer intention for the purchase of energy efficient home appliances.

Methodology

Data Collection and Sampling

The data of the respondents were gathered through the survey method. Non probability purposive sampling technique was employed to select the participants of the study, as it is a suitable technique in situations where the possibility of getting complete sampling frame is difficult. Chan (2001) also suggested the collection of data from the consumers of above 18 years old because this age segment has more knowledge about green products. Therefore, we have distributed questionnaire to the respondents of above 18 years old. Previous researchers in green marketing surveyed consumers of metropolitan cities (Ali et al, 2019; Bailey Mishra & Tiamiyu, 2016; Chekima,, Khalid, Igau, Chekima & Sondoh, 2016; Ritter, Borchardt, Vaccaro, Pereira & Almeida, 2015; Hassan, 2014). On the premise of this, we have collected data from the metropolitan city of Pakistan, Karachi. Hair, Black, Babin and Anderson (2010) suggested at least five (5) responses per item and a maximum 30 responses per item. We have selected the criteria of 1:20 for the data collection which makes our sample size 540. Questionnaires were distributed to shopping malls, restaurants (KFC & McDonald), hypermarkets, superstores and university students in Karachi.

Measures

All the items of the current study had been validated in previous studies. Therefore, we have adapted items of constructs from prior studies with minor modifications to suit the given context. Three items of Eco labels were adapted from the study of (Taufique et al., 2017). Perceived consumer effectiveness items were adapted from the study of (Roberts, 1996). Functional values measures were adapted from (Sweeney & Soutar, 2001). Measures of attitude towards green products were adapted from (Taylor & Todd, 1995). Measures for green trust were borrowed from the study of (Chen & Chang, 2012). For the measurement of environmental concern and purchase intention, all items were adapted from Kilbourne & Pickett, 2008).

Respondents' Profile

A total of 540 questionnaires were distributed to the respondents, out of which 446 valid responses were returned with a response rate of 82.59%. Busy , Sorry and No time were the main reasons of respondents not participated in the study. As regards to demographic characteristics, majority of the participants were male (n= 253, 56.72%). In terms of marital status, majority of the respondents were unmarried (n=282, 63.22%). In terms of academic qualification, 353 respondents (79.14%), having master degree, followed by 60 respondents (13.45%) bachelor's degree holders, 28 respondents (6.27%) were having M.Phil. degree. Energy efficient appliances serve to save energy, and helps reduce monthly bills of consumers. Therefore, these products are the center of attraction for all classes of consumers. In terms of monthly income in Pakistani rupees, 131 respondents (34.49%) falls in the income category of (PKR: 65001 to

85000), followed by 121 respondents (21.66%) in the income category of (85001 to 105000) and 66 respondents (20.85%) in the income category of (PKR: 25000 to 45000); 19 respondents (18.18%) falls in the income category of (PKR: 105001 to 125000); only 2 respondents having monthly income over PKR: 125000.

Results and Analysis

The Measurement Model

Structural equation modeling has been employed by using Partial Least square for the measurement of model. PLS path modeling approach is efficient and convenient for the assessment of complex models. A two-step analytical method was used in this study; first we analyzed the measurement model, and then applied the structural model. A composite reliability of 0.70 or more and an average

variance extracted (AVE) of more than 0.50 are deemed acceptable validity. Table 1 showing the values of composite reliability falling in the range of 0.795 to 0.904 above the recommended threshold of 0.70 (Gefen, Straub & Boudreau, 2000; Nunnally & Bernstein, 1994), thus confirming the data robustness. AVE for all constructs are greater than 0.50, surpassing the recommended threshold of (Hair, Sarstedt, Hopkins & Kuppelwieser, 2014). Thus the measures of the constructs in this study verifying acceptable convergent validity. Fornell & Larcker's (1981) criterion was used for the assessment of discriminant validity by comparing square root of average variance extracted with constructs correlations. Table 2 confirming that the square root of each construct of AVE is greater than the corresponding highest correlation (Farrell, 2010).

Table 1 : Descriptive Analysis and Measurement Model

Constructs	Items	Standardized factor loading	Cronbach s Alpha (ά)	Composite reliability (CR)	Average Variance Extracted (AVE)
Environmental Concern	EC1	0.733			
	EC4	0.844	.670	0.821	0.605
	EC5	0.752			
Green Trust	GT1	0.763			
	GT2	0.740	.636	0.803	0.576
	GT3	0.775			
Purchase Intention	PI1	0.683			
	PI2	0.769	.726	0.830	0.550
	PI3	0.782			
	PI4	0.729			
Attitude towards green products	ATD1	0.767			
	ATD2	0.783	.612	0.795	0.564
	ATD3	0.701			
Perceived Consumer Effectiveness	PCE1	0.884			
	PCE3	0.710	.745	0.854	0.663
	PCC4	0.838			
Functional values	SV1	0.664			
	SV2	0.760	.648	0.810	0.516
	SV3	0.727			
	SV4	0.719			
Eco-Labels	EL1	0.913	.788	0.904	0.825
	EL2	0.904			

Table 2 : Discriminant Validity (inter -correlations) of constructs

Latent variables	1	2	3	4	5	6	7
Attitude	**0.751**						
Environmental Concern	0.069	**0.778**					
Eco-Labels	0.277	0.155	**0.909**				
Functional Values	0.168	0.226	0.268	**0.719**			
Green Trust	0.042	0.408	0.184	0.169	**0.759**		
Perceived Consumer Effectiveness	0.063	0.585	0.122	0.217	0.247	**0.814**	
Purchase Intention	0.200	0.445	0.192	0.363	0.312	0.344	**0.742**

Note: The diagonals (in bolds) re   present the square root of AVE, and off   -diagonal values represent the correlations of each construct with other constructs.

The Structural Model and Path Analysis

Assessing structural equation model includes a significance of path coefficient analysis, assessment of values of R2 (ranges from 0 to 1 represents complete predictive accuracy), and finally predictive relevance (Q2). To examine path coefficients we have used 5000 re-sampling bootstrapping procedure. The results of structural model illustrate that coefficient of determination (R2) explaining 22.3% variance to predict consumers' intention for the purchase energy saving home appliances. Besides evaluating value of the values R2 as a criterion for predictive accuracy, Stone-Geisser's Q2 value is also an important criterion need to be analyzed via blindfolding. The value of Q2 for purchase intention is 0.08 which is higher than 0 indicates that exogenous variables possess predictive relevance (Hair et al., 2016).

Table 3 presents the results of the hypothesis test of this study based on the path coefficient and T statistics. The values of path coefficient ranges between -1 and + 1. The estimated path coefficient closer to +1 indicates positive strong relationship, and -1 indicates negative relationship between constructs (Hair et al., 2016). Ten hypothesis were tested based on TPB, i.e. PCE, ATD and PI integrated with other variables such as EL, GT, EC and FV.

The values of path coefficients and significant values refers to the accepting and rejection of relationships among the studied variables. For example, H1, predicting consumers' attitude towards the purchase intention of energy efficient home appliances is statistically significant ($\beta = 0.135$, p < 0.009);H2, proposed the positive relationship between consumers' green trust and environmental concern was supported ($\beta = 0.408$, p < 0.000);H4, proposed the positive relationship between consumers' knowledge of eco-labels and functional values was also supported ($\beta = 0.232$, p < 0.000);H5, predicting the positive relationship between consumers' knowledge of eco-labels and green trust was accepted($\beta = 0.184$, p < 0.000); H6, predicting the positive relationship between consumers' knowledge of eco-labels and attitude towards energy efficient home appliances was accepted($\beta = 0.250$, p < 0.000), H7, predicting the positive relationship between functional values of energy efficient home appliances and consumers' attitude was accepted ($\beta =0.101$, p < 0.05), H8, predicting the positive relationship between functional values and consumers' purchase intention for the energy efficient home appliances was also accepted ($\beta =0.281$, p < 0.000), H9, predicted positive relationship between environmental concern and functional values was accepted ($\beta =0.166$, p < 0.002); H10, predicted the positive relationship between environmental concern and perceived consumer effectiveness was accepted ($\beta =0.585$, p < 0.000), H11, predicted the positive relationship between perceived consumer effectiveness and purchase intention was accepted ($\beta =0.275$, p < 0.000). However, the result of H3, predicting the positive relationship between green trust and functional value was statistically insignificant, indicates that there is no significant relationship between consumers' green trust and functional values of the energy efficient home appliances ($\beta = 0.059$, p < 0.299). The PLS-SEM analysis results are also summarized in the research model in Figure 1.

Figure 1: Structural Equation Model
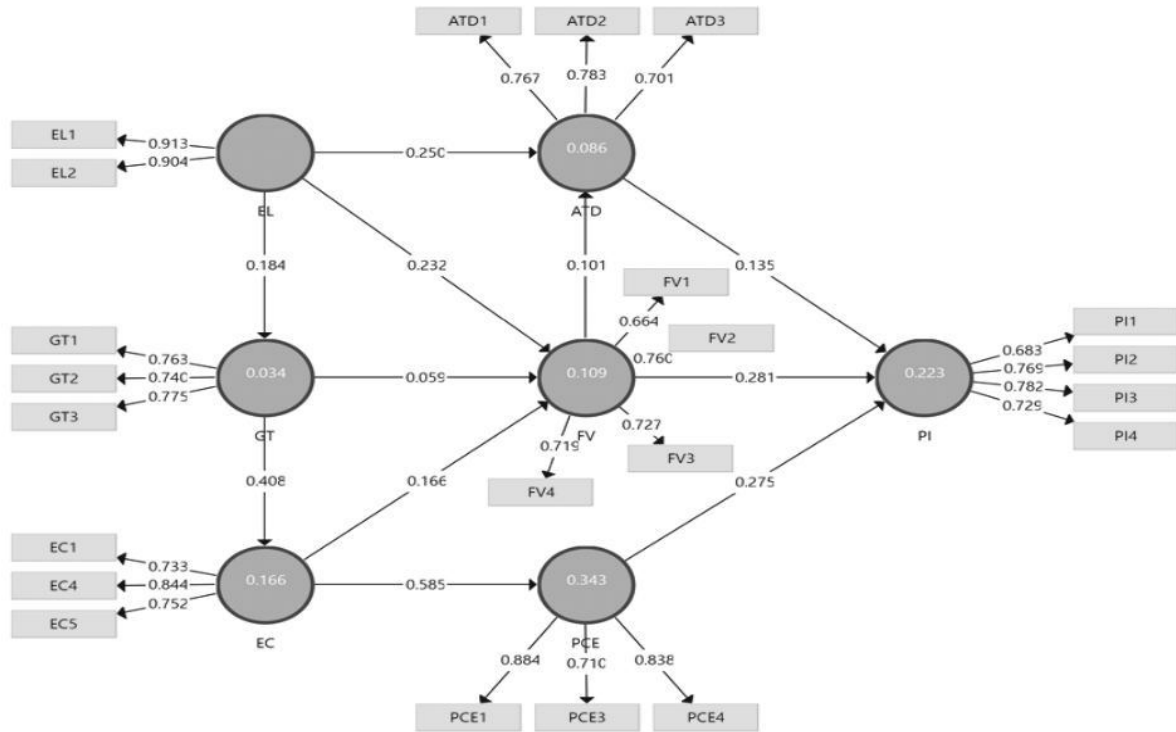
Structural Equation Model

Table 3 : Hypotheses Assessment Summary

Hypotheses	Beta	SE	p-values	t-values	Decision	Interpretation
ATD -> PI	0.135	0.051	0.009*	2.634	Accepted	Small
GT-> EC	0.408	0.045	0.000**	9.014	Accepted	Large
GT ->FV	0.059	0.056	0.299	1.039	Rejected	-----
EL-> FV	0.232	0.046	0.000**	5.009	Accepted	Large
EL -> GT	0.184	0.046	0.000**	4.029	Accepted	Large
EL -> ATD	0.250	0.045	0.000**	5.524	Accepted	Large
FV -> ATD	0.101	0.051	0.05*	1.967	Accepted	Small
FV->PI	0.281	0.044	0.000**	6.234	Accepted	Large
EC ->FV	0.166	0.054	0.002**	3.060	Accepted	Small
EC-> PCE	0.585	0.035	0.000**	16.748	Accepted	Large
PCE->PI	0.275	0.043	0.000**	6.316	Accepted	Large

Note: Path coefficients (Beta); T-values for one-tailed; 2.33 (p < 0.01), 1.645 (p < 0.05*).**
T-values for two-tailed; 2.58 (p < 0.01), 1.96 (p < 0.05*).**

Conclusion, Discussions, Limitations & Future Research

Conclusion and Discussion

This study attempted to predict consumer purchase intention for the purchase of energy efficient home appliances. In the last two decades, energy issues have been given huge importance in developing countries. The consumption of energy and its effect has posed serious threats to sustainability of environment. Threats to environment due to unsustainable energy consumption have provided ample opportunities to marketers that led to the production of energy efficient home appliances. This study has used theoretical lens of theory of planned behavior to analyze the effects of consumer intention to purchase energy efficient home appliances. In the context of energy efficient products, number of constructs have vital role to persuade consumers' purchase intention. In review of literature, past studies had some shortfalls regarding constructs that supposed to be crucial in the context of green products. Current study has added consumers' knowledge of eco-labels, green trust and products functional values as novel predictors in the theory of planned behavior. In order to provide a holistic picture of consumers' tendency towards energy efficient home appliances, this study has tried to provide new dimension at the predictors of purchase intention.

Results are encouraging and supporting the proposed hypotheses except in case of the positive relationship between consumers' green trust and functional values energy efficient home appliances. The findings of this study are consistent with theory of planned behavior, verifying that attitude is an important antecedent of consumer purchase intention (Chan and Lau, 2002). Perceived consumer effectiveness was positive and statistically significant regarding environmental concern and consumers' purchase intention. These findings are consistent with previous studies regarding consumers' consumption of green products (Akehurst et al., 2012, Kotchen, 2005). This suggests that consumers' at their personal capacity believe their individual efforts to minimize the hazardous effects will contribute towards the betterment of environment. Consumers' self-belief can be enhanced by incorporating environmental attributes into products and communicating same with the consumers. Heo and Muralidharan (2017) proposed, marketers may enhance consumers' self-belief by the help of actual consumers' words of mouth.

The strong positive influence of consumers' knowledge of eco-label on products' functional values, green trust and attitude towards green products suggest the importance of valuable environmental information regarding green products, as verified in the prior studies (Atkinson & Rosenthal, 2014; Mc Cluskey, 2000). This depict that eco-labels have crucial role in developing market to persuade consumers for the purchase intention. Consumers' green trust about the effectiveness and benefits of environmentally efficient products leading towards the protection of environment is consistent with previous findings (Jiang, Chen, & Wang, 2008; Doney, Cannon, & Mullen, 1998). Consumers' attitude for the purchase of energy efficient has also verified and is consistent with the past findings (Tan et al., 2017; Wang et al., 2016; Gadenne et al., 2013; Ha & Janda., 2012). However, proposed hypothesis regarding the positive relationship between green trust and functional values of products was not supportive. This may be due to lack of adequate marketing communication or easily available counterfeit products in developing markets. Marketers can counter consumers' misconception through actual users' words of mouth and green advertising. The relationship between products' functional values and consumers' purchase intention was positive and significant. The positive relationship between energy efficient home appliances and consumers purchase intention portrays that consumers' consider utilitarian benefits of products which matches the findings of previous studies (Suki & Suki, 2015; Ritter et al., 2015). Overall, results of this study provided a comprehensive outlook of consumers' approach towards the purchase of energy efficient home appliances. Findings of the study have revealed that consumers have positive inclination towards the sustainability of the environment. Perceived consumer effectiveness and consumers' knowledge of eco-labels were found important predictors of green products' purchase intention. Through proper marketing communication and words of mouth regarding utilitarian benefits of environmental products, marketers can contribute to reduce carbon footprints on the environment.

Limitation and Future Research Directions

There are some limitations of this study. First, from a methodological perspective, this study was conducted in one metropolitan city i.e., Karachi, Pakistan. To assess consumers' intention for the purchase of energy efficient home appliances, data may be gathered from other cities of Pakistan, with larger sample size. Another potential limitation is related to the data collection from homogenous students of collectivistic culture. Future studies may integrate novel constructs with different age groups and more representation (Government and private employees, teachers, and doctors). Third limitation is related to the predictors of green purchase intention. There are number of antecedents of green perceived value (Sweeney & Soutar, 2001), but this study has only focused on functional attributes of the products which is justified with the nature of products. Future studies may incorporate other variables of green perceived values such as social values, conditional values and emotional values. Further, future studies may also integrate psychographic variables such as altruism and

moral norms .Stern, Dietz, and Kalof (1993) suggest that altruism is an important predictor of pro-environmental behavior. Moral norms are also another important construct that may improve explanation of theory of planned behavior, especially in the environmental context (Armitage & Conner, 2001). Fifth limitation is related to consumer actual purchase of green products. This research has analyzed consumers' purchase intention for energy efficient home appliances. For an understanding of consumers' actual green purchase behavior, longitudinal data should be gathered from the same respondents, preferably after six months. Last limitation is related to testing through symmetric model, Partial Least Square (SEM). Woodside (2017) explained problems about symmetric theory construction and testing. According to Wood (2017), all relationships are significant with a very large number of cases (n ♀ (12)00). He proposed to perform asymmetric modeling and analysis based on complexity theory principles. Future studies may incorporate asymmetric modeling and somewhat precise outcome testing (SPOT) procedure on the tenets of complexity theory to better match data analytics.

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