



**Factors Affecting Consumers' Recycling Behavior in Developing Countries:  
Extending the Theory of Planned Behavior in the Recycling Domain**

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**Abstract:**

This study examines the factors that may influence recycling behavior of consumers in developing countries, specifically in the context of Pakistan. A conceptual framework was proposed using TPB to explain the impact of consumer knowledge and perceived consumer effectiveness on consumer recycling. The respondents were selected by using non-probability sampling technique and the questionnaire was shared online with the respondents by using different digital platforms. The data was collected from 324 respondents living in Karachi, Pakistan and analyzed through Structure Equation Modeling on SMART PLS. The findings suggest that attitude, perceived consumer effectiveness and subjective norms show positive significant impact on consumers recycling intention. However, there is an insignificant impact of Consumer Knowledge and Perceived Behavior Control on recycling intention. The findings of the study are relevant for marketers, government/policymakers, businesses, manufacturers, environmentalists and academicians. This study would help practitioners and marketers in developing their strategy to promote recycling behavior in developing countries.

**Keywords:** *Recycling Behavior, Theory of Planned Behavior, Perceived Consumer Effectiveness, Consumer knowledge, Recycling intention*

**Introduction**

One of the greatest challenges faced by the planet earth is climate change (Hameed et al., 2021a). According to the UN Foundations (2020), the intensity of climate crises can be understood by recent incidents of deadly wildfires,

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devastating hurricanes, extreme weather conditions and rise of sea level. It can be said that it all started soon after World War II, when second industrial revolution began in 1960s. This revolution gave rise to the culture of consumerism. Following this, during 1970s world leaders started collaboration for curtailment of the factors causing environmental degradation. These efforts attained international attention from all stakeholders, including industries, marketers, manufacturers, businesses, NGOs, environmentalists and the common public (UNGA, 1992). This was the time when the term ‘Green Marketing’ was coined during 1990s. Following the emerging trends businesses started integrating pro-environmental features to cater growing public demand for environmentally friendly products and services (McDaniel et al., 1993).

Since the 20<sup>th</sup> century, green marketing has been addressing concerns of environment conscious consumers and their pro-environmental determinants. Keeping this notion in consideration, academic researchers started investigating the relationship human beings share with their environment. Till today, research in the domain of pro-environmental behaviors has been established in several dimensions, including; green purchase and consumption (Butt, 2017; Loo et al., 2013; Dietz et al, 2009), recycling behavior (Thogerson, 2006; Ofstad et al., 2014; Khan et al., 2019), green hotel operations (Hameed et al., 2021) and conservation of energy (Hertwich, 2005; Wang et al., 2018). In developed countries, these issues have somehow already been sorted out, but when it comes to developing countries, the situation is getting worse day by day (Butt, 2017). Developing and under developed countries have been spotted as the major regions being affected by environmental-related crises. According to the Global Climate Risk Index (WEF, 2020) cities having the worst air quality are from India, Pakistan, Bangladesh and China. Following that it can be argued that environmental degradation of developing countries is the biggest concern for the entire world nowadays.

However, it has gotten increasingly imperative that consumers should have enough knowledge about their environment so that they can regulate the prevalent environmental changes in their surroundings. Several researches focused to explore the complex interaction of an individual’s consumption patterns and their environment (Hameed & Khan, 2020; Moisander, 2007). Despite these efforts, anticipated results have still not been observed from both consumers as well as businesses end. Lately, a transformed shift in the domain of green marketing has brought the focus towards other pro-environmental behaviors. One of the vital pro-environmental behaviors found to be ‘Recycling Behavior’ (Iyer and Kashyap, 2007; Valle, Rebelo, Reis & Menezes, 2005, Fang et al, 2020; Islam, 2021)

According to the World Bank (2018) report, Asia and East Asia generates around 23 percent of the global waste annually. Likewise, it states that more than one-third of waste in developed countries is recovered through recycling as compared to merely 4 percent in developing countries (EPA, 2019). One of the reasons for not going for a proper recycling mechanism is the lack of awareness. Findings suggest that the main issue is with households, they do not have proper awareness on how to dispose of their solid waste material properly (EPA, 2019).



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These findings indicate that there is a lack of enough recycling knowledge in developing countries amongst the consumers about recycling determinants. Recycling is the basic component that covers sustainable waste management effectively. In the same lines, Singh and Verma (2017) demonstrates that if a consumer has knowledge about the environment and products, and knows how to recycle them instead of throwing, it would help in keeping the environment less polluted. In this regard, there are several green products in the markets which when recycled can be useful for the consumers, most of them include textile and plastics (Mahmud & Osman, 2010; Domina & Koch, 1999). Research further stated that people simply demonstrate recycling until it actually happens. It has also been found that there is a reason recycling is described as a basic component of solid waste management and a significant determinant that stimulates an individual's capability for the actual performance of the action. (Barbarossa & De Pelsmacker, 2016).

Thus, the gap of basic recycling knowledge amongst consumers needs to be addressed. Prevalent research in this domain is not sufficient to integrate different variables to come up with a single and comprehensive model for consumers of a developing country. Hence, the present study aims to identify the factors impacting recycling intentions and behavior of Consumers from developing nations. Implications of the study would be beneficial most importantly for marketers; through recommendations, they will be able to alter their marketing strategies more sustainably. The second audience of this study is policymakers and the government, they can devise the laws and release the funds for stated issues respectively. Another audience includes academia; the present study would be an important milestone and preliminary point to initiate the research stream in this domain, specifically in the context of developing countries.

## **Literature Review**

### **Pro-Environmental Behavior (PEB)**

Pro-environmental behavior (PEB) refers to a particular behavior that impacts or may change the availability of materials or alter the environmental structures or dynamics of the ecosystem (Stern et al., 2000, Steg et al., 2014; Ates, 2020). While keeping this in consideration, individuals try to opt for these behaviors in several dimensions. Includes: Green purchases (Kim and Seock, 2019; Recycling practices and Behavior (Khan et al., 2019) and Energy Conservation (Wang et al., 2018). In addition, PEB has instigated a great amount of interest for scholars intending to study environmental issues (Ates, 2020; Adrita and Mohiuddin, 2020)

### **Theory of Planned Behavior (TPB)**

Theory of planned behavior (Ajzen 1985, 1991) has been used extensively to predict the pro-environmental behavior of individuals (Li et al, 2019; Mason, 2017). The theory provides a set of framework that that links attitude, subjective norms, and perceived behavioral control to shape an individual's intentions and behaviors. TBP has proved its significance and is one of the most frequently applied theories to explain pro- environmental



intention and behavior (Kaffashi and Shamshuddin, 2019; Yuriev et al., 2020; Wang et al., 2016). Mahmud & Osman, (2010) stated in their study that TPB has been proved to be a foundational theory to determine the elements that influence the recycling decisions of an individual. It has also been stated that from its origination, the TPB has been successfully used to estimate wide-ranging behaviors, including recycling behavior (Stancu et al., 2016). Foundations of the present study are built on TPB to study the factors that may influence recycling intentions and behavior of consumers in developing countries, specifically in the context of Pakistan.

### **Recycling Intention and Behavior (RI → RB)**

The theory of planned behavior states that individual's intentions are determined by attitudes, subjective norms and perceived behavior control; whereas behavior is determined by intentions (Ajzen, 1985, 1991). Recycling behavior has been referred as one of the pro-environmental behaviors by many researchers (Fang et al., 2021; Iyer and Kashyap, 2007; Valle, Rebelo, Reis & Menezes, 2005). Many studies focusing recycling behavior has stated that recycling intention is a personal commitment of an individual to adopt recycling behavior. In a study Park and Ha (2014) reported that consumers' recycling intention has been significantly influenced by consumers' attitude and perceived behavioral control, supporting the findings of Taylor and Todd (1995). In a study, Mahmud & Osman (2010) found that subjective norms are the main reason of consumers' recycling behavior. Thus, it can be inferred that previous researches mention intention as the antecedent of behavior (Fang et al., 2021; Stancu et al., 2016; Ramayah et al., 2012; Perugini & Bagozzi, 2001). Hence, it can be postulated that:

H1: Recycling intentions have a significant impact on recycling behavior.

### **Attitude**

“Attitude” is an individual's overall evaluation of performing a certain behavior as favorable or unfavorable (Ajzen, 1985; Ramayah et al., 2012; Kim & Hwang, 2020). Usually consumer attitude is defined as favorableness or unfavorableness towards an object and when this notion is used for environment it refers the environmental attitude of a consumer (Islam, 2021). It indicates that personal desirability and belief of an individual have an impact on his intention and behavior (Krueger et al., 2000; Waris & Hameed, 2021). Plenty of studies have identified several factors that shape attitudinal beliefs specifically for recycling and other pro-environmental behaviors, in general (Islam, 2021; Akil et al., 2015; Mosainder, 2007; Vining and Ebreo, 1990). These arguments posit that recycling-specific attitudes better predict recycling intentions than general environmental attitudes. In a similar view, several other researchers have reported higher attitude-intention relationship for consumers who had been involved in waste recycling in last three months, as compared to those who did not recycle. (A Al Mamun et al., 2018; Nigbur et al., 2010). Hence, it can be hypothesized that:



H2: Attitude has a significant impact on recycling intention.

### **Subjective Norms**

“**Subjective norms**” can be defined as the friends, family members or peers’ views about an individual compliance with the specific norms (Khan et al., 2019). According to Azjen (1991) the subjective norms is one’s feeling regarding the social pressure whether to engage in a particular behavior or not. The normative beliefs determines the subjective norms, which assure that one’s particular behavior would be supported or opposed by the important referent groups or individuals (Ajzen, 1985; Park & Ha, 2014; Veciana et al., 2005). Many studies have tested and proved subjective norms and intention relationship (Kumar, 2019; Keat et al., 2011). Previous studies have explained that social norms significantly impact an individual recycling intention and behavior (Razali et al., 2020; Shin et al., 2018; Shaw, 2008). In a research Khan et al. (2019) reported that subjective norms showed a significant impact on consumer recycling of plastic waste. So, the following hypothesis is proposed:

H3: Subjective Norm has a significant impact on recycling intention

### **Perceived Behavioral Control**

‘**Perceived behavioral control**’ describes as one’s ability to perform a certain behavior (Ajzen, 1991). It shows people confidence and control to overcome possible obstacles in performing a particular behavior. The concept of perceived behavioral control is related to self-efficacy concept, denoting one’s own perception of his ability to perform a particular behavior (Kumar, 2019; Ramayah et al., 2012). In a research Russell et al. (2017) indicate that perceived behavioral control significantly impacts people’s intention to develop pro-environmental behaviors i.e. food waste recycling. Stoeva and Alriksson (2017) demonstrated in their study that poor waste recycling facilities lead to weak relation of perceived behavioral control and hence, decline the household’s contribution to recycling activities. The major barriers of recycling as mentioned by respondents in several studies include; inadequate recycling facilities, time limitations, long distance recycling hubs, and inconvenience in recycling (Wang et al., 2011, 2016). Sidique et al., (2010) also supported this argument and stated that the recycling cost, time and space availability and ease in performing recycling-related activities matter the most when it comes to the recycling behavior of an individual. In developing economies context, it has been asserted that PBC is a good predictor of consumers’ household recycling intentions (Kianpour et al., 2017). Therefore, it can be postulated that:

H4: Perceived behavior control has a significant impact on recycling intention

### **Consumer Knowledge (CK)**

Researchers have determined that consumer environmental knowledge is associated with developing attitudes and behavioral patterns that reflect concern for the environment



(Lee,2011). However, it has also been reported that consumers who have more environmental knowledge tend to show greater environmental concern than those who have lesser knowledge (Butt et al., 2021; Park & Ha, 2014). However, in the domain of recycling behavior, several researchers attempted to find out the relationship between recycling knowledge and recycling behavior (Oke et al., 2016; Stepska et al., 2006; Vicente and Reis, 2008). In a similar view, Lim (2012) supported this view and suggests that environment familiarity and knowledge acquired by prior experience could positively affect recycling intention and behavior. Thus, it can be argued that when consumers have enough information about recycling they would develop positive perception and attitude towards recycling. (Geiger et al, 2019; Babaei et al., 2015)

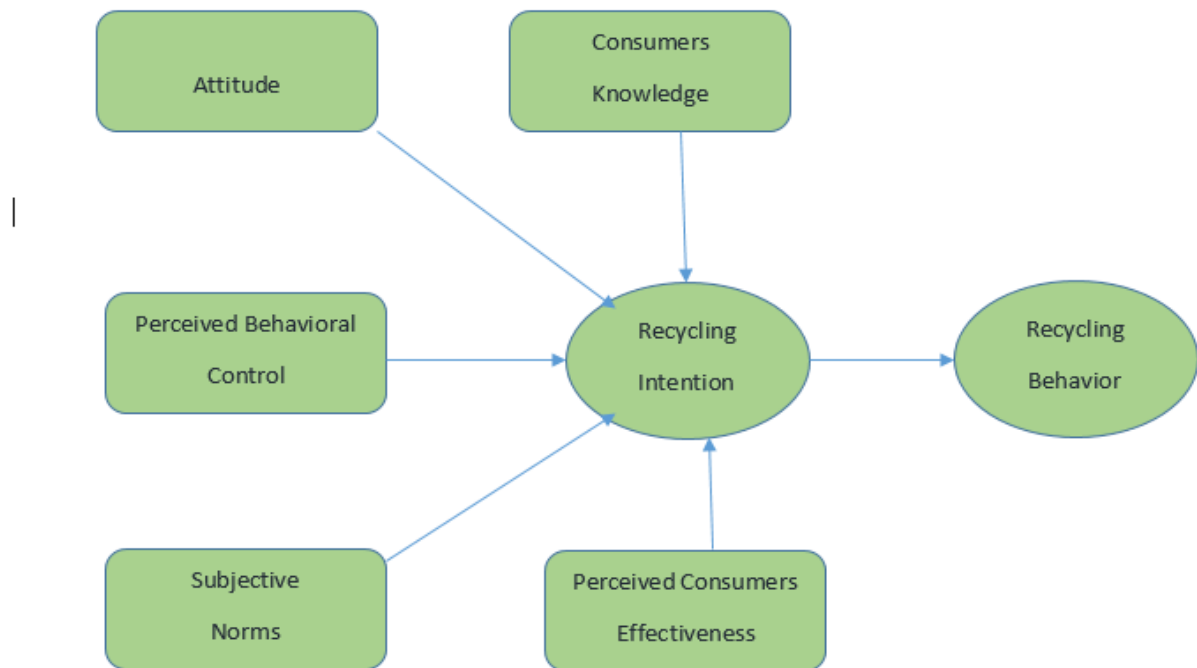
H5: Consumer Knowledge has a significant impact on recycling intention

### **Perceived Consumer Effectiveness (PCE)**

Perceived consumer effectiveness (PCE) has been defined by Kinnear et al., (1974) as a measurement of the people belief that their green actions will result in environmental protection practices. It has been argued that perceived consumer effectiveness is an individual's belief that they can create a difference in solving social problems, it is the assessment criteria of consumers' individual ability to affect the problems of environmental resources (Binder, 2014). The role of environmental concern affects consumers' pro-environmental behavior, including green purchase and recycling (Ellen et al., 1991). According to Tan (2011), higher perceived consumer effectiveness lead to higher environmental consciousness. It had been stated that PCE had extensively been used in literature and have shown a significant positive correlation of PCE with environmentally conscious consumers' behavior. (Gerard et al.,2019; Aaker & Bagozzi, 1982; Roberts & Bacon, 1996). Although there has been significant support for PCE in the prediction of pro-environmental behavior there is less research conducted on how PCE impacts recycling intention and behavior. After reviewing few of the researchers it can be argued that an individual with the high level of PCE shows persistence in shaping their intentions and behaviors for environmental issues (Kim & Choi, 2005). Whereas, in the domain of recycling behavior, few studies have stressed the influence of Perceived consumer effectiveness on recycling behavior. (Gupta & Ogden, 2006 ; Kabadayi et al., 2015; Arias ,2017). Hence, in the light of reviewed literature present study hypothesizes that PCE have the ability to trigger an individual's intention for recycling practices.

H6: Perceived Consumer Effectiveness has a significant impact on recycling intention

### **Research Model**



## Methodology

### Measures

The measures of the present study have been adopted from the existing literature. The measurement scales of recycling intention and recycling behavior have been drawn from the A Al Mamun (2018). The scale has four items of recycling intentions and five items of recycling behavior. Attitude, subjective norms and perceived behavioral control have been adopted from the study of Tonglet et al. (2004). The measurement items are four five and eight respectively. The scale of Perceived consumer effectiveness is comprised of six items and has been adopted from the studies of Abdul-Muhmin (2007) and Zabkar & Hosta (2013). Whereas, the measurement scale for consumer knowledge has been used following the study of Kang (2013). These scales have been widely used previously and considered valid and reliable for model testing. The instrument of statistics collection which was used as a unit of the analysis is a Likert-scale self-guided survey. The seven-point Likert scale has been used to collect data. The instrument consists of seven option choices, ranging from Strongly Disagree (7) to Strongly Agree (1). However, PCE was developed on 5 points Likert scale where 1 represents Strongly Disagree and 5 represents strongly agree.

### Demographics

The demographic details of respondents are mentioned in table 1. Data has been collected from 324 respondents, out of which 31 responses were deleted during the data cleaning stage. Respondent's demographic characteristics were categorized according to

their gender, education level, age and marital status. In the category of gender out of 293 respondents, 173 (59%) were male and 120 (41%) were female respondents. In terms of education, there were 126 (43%) undergraduates, 89 (33%) graduates and 78 (27%) had post-graduate degrees. Moreover, there were 127 (43%) respondents aged between 18-25 years, 141 (48%) aged between 26-35 years, 22 (8%) aged between 36-50 years and 03 respondents (1%) were older than 50 years. Lastly, according to their marital status, there were 105 (36%) married whereas 188 (64%) unmarried respondents amongst the collected sample size.

**Table 1: Respondents Summary**

S:N	Variables	Items	Frequency	Percentage
1	Gender	Male	173	59.04%
		Female	120	40.95%
2	Education	Undergraduate	126	43.00%
		Graduate	89	30.37%
		Post Graduate	78	26.62%
3	Age	18 years to 25 years	127	43.34%
		26 years to 35 years	141	48.12%
		36 years to 50 years	22	7.50%
		50 years and above	3	1.02%
4	Marital Status	Married	105	36%
		Unmarried	188	64%

## RESULTS AND ANALYSIS

### Measurement model

This part of study reports the conceptual model results of structural equation model performed on Smart PLS (version). Convergent validity has been reported by using factor loadings, then composite reliability (CR) and average variance extracted (AVE) of the data were calculated and shown in table 2. All the items are having factor loading greater than 0.6 ranging from 0.65 to 0.81, so none of the items has been deleted from the study. It ensures the convergent validity according to the proposed criteria by Fornel & Lacker (1981). Similarly, all values for CR and AVE are ranging from 0.835 to 0.900 and 0.530 to 0.665 respectively. This also ensures convergent validity and reliability are in line with the Hair et





al. (2009) proposed criteria.

**Table 2: Reliability and validity results**

<b>Items</b>				
<b>Attitude</b>	<b>Factor Loading</b>	<b>Alpha</b>	<b>CR</b>	<b>AVE</b>
1. Recycling is good.	<b>0.758</b>	<b>0.831</b>	<b>0.877</b>	<b>0.544</b>
2. Recycling is useful.	<b>0.783</b>			
3. Recycling is rewarding.	<b>0.732</b>			
4. Recycling is sensible.	<b>0.653</b>			
5. Recycling is responsible.	<b>0.755</b>			
6. Recycling is hygienic.	<b>0.736</b>			
<b>Consumer Knowledge</b>				
1. I am quite familiar with recycling products	<b>0.744</b>	<b>0.842</b>	<b>0.883</b>	<b>0.557</b>
2. I often see recycling behavior positively	<b>0.785</b>			
3. I have often bought recycled products	<b>0.740</b>			
4. I have often purchased recycled items	<b>0.692</b>			
5. I know quite a lot about recycling.	<b>0.786</b>			
6. I have often read articles or news about or have learned about Recycling products.	<b>0.727</b>			
<b>Perceived Behavioral Control</b>				
1. I have plenty of opportunities to recycle.	<b>0.772</b>	<b>0.873</b>	<b>0.900</b>	<b>0.530</b>
2. Recycling is inconvenient (R).	<b>0.752</b>			
3. Recycling is easy.	<b>0.716</b>			
4. The local council provides satisfactory resources for recycling	<b>0.729</b>			
5. I know what items can be recycled.	<b>0.729</b>			
6. I know where to take my household waste for recycling.	<b>0.725</b>			
7. I know how to recycle my household waste.	<b>0.709</b>			
8. It will be easy for me to engage in household recycling during the next month	<b>0.687</b>			
<b>Perceived Consumer Effectiveness</b>				
1. Each person's behavior can have a positive effect on society by their	<b>0.674</b>	<b>0.856</b>	<b>0.893</b>	<b>0.584</b>



Signing a petition in support of promoting the environment.							
2. I feel I can help solve the natural resource problem by conserving water and energy	<b>0.704</b>						
3. I can protect the environment by buying products that are friendly to the environment	<b>0.798</b>						
4. There is much more that we can do about the environment	<b>0.787</b>						
5. I feel capable of helping solve the environment problems	<b>0.810</b>						
6. When I buy products, I try to consider how my use of them will affect the environment and other consumers	<b>0.801</b>						
<b>Subjective Norm</b>							
1. Most people think I should recycle.	<b>0.760</b>						
2. Most people would approve of me recycling	<b>0.786</b>						
3. Most of my friends think that household recycling is a good thing to do.	<b>0.755</b>	<b>0.817</b>	<b>0.872</b>	<b>0.577</b>			
4. Most people who are important to me want me to engage in Household recycling.	<b>0.743</b>						
5. Most of my families think that household recycling is a good thing to do.	<b>0.754</b>						
<b>Recycling Behavior</b>							
1. I collect and recycle used paper.	<b>0.758</b>				<b>0.833</b>	<b>0.888</b>	<b>0.665</b>
2. I recycle paper, glass and/or metal waste products at home.	<b>0.783</b>						
3. I would feel guilty if I did not recycle my household waste	<b>0.732</b>						
4. I support policy that eliminates the use of paper cups and Styrofoam materials.	<b>0.653</b>						
<b>Recycling Intention</b>							
1. I intend to recycle.	<b>0.681</b>	<b>0.736</b>	<b>0.835</b>	<b>0.559</b>			
2. I intend to practice recycling by bringing my own container or reuse bags.	<b>0.755</b>						
3. I have time to separate my household waste.	<b>0.786</b>						
4. I have actually planned to perform recycling.	<b>0.765</b>						

Fornel & Lacker (1981) proposed criteria was used to report discriminant validity. According to the criteria, square root of a particular factor’s AVE must be greater than the correlations amongst constructs. The values in table 3 show that there is no significant issue in the data and all constructs meet the discriminant validity criteria.

**Table 3: Discriminant Validity**

Measures	ATT	CK	PBC	PCE	RB	RI	SN
ATT	<b>0.737</b>						
CK	0.595	<b>0.746</b>					
PBC	0.639	0.627	<b>0.728</b>				
PCE	0.620	0.441	0.565	<b>0.764</b>			
RB	0.485	0.378	0.470	0.695	<b>0.816</b>		
RI	0.706	0.548	0.629	0.639	0.512	<b>0.748</b>	
SN	0.662	0.540	0.703	0.630	0.472	0.653	<b>0.760</b>

### SEM Estimation and Test of Hypotheses

Following the validity and reliability of the given model, the next phase of this analytical model includes the structural model evaluation. For structural model measurement, beta coefficients and *t*-statistics both were taken into consideration for the assessment of the significance of hypothesized paths. The result mentioned in table 4 indicates standardized path coefficients-values and results.

That first hypothesis shows the significant impact of attitude on recycling intention, ( $\beta= 0.518$ ;  $p < 0.05$ ). The second and third hypotheses indicate that there is non-significant impact of consumer knowledge and perceived behavioral control on recycling intention ( $\beta= 0.045$ ;  $p > 0.410$  -  $\beta=0.093$ ;  $p > 0.086$ ). Moreover, perceived consumer effectiveness and subjective norms have shown a positive and significant impact on recycling intention ( $\beta= 0.177$ ;  $p < 0.000$  -  $\beta= 0.109$ ;  $p < 0.045$ ). Similarly, recycling intention has also shown a positive and significant impact on the recycling behavior of a consumer ( $\beta= 0.512$ ;  $p < 0.000$ ). Thus it has been concluded that H1, H4, H5 and H6 have been accepted whereas., H2 and H3 have been rejected.

**Table 4: Test of Hypotheses**

Paths	Coefficients	Sample Mean	Standard Deviation	t- value	Sig value	Results
ATT → RI	0.518	0.516	0.053	9.791	<b>0.000</b>	accepted
CK → RI	0.045	0.045	0.054	0.825	0.410	rejected
PBC → RI	0.093	0.095	0.054	1.719	0.086	rejected
PCE → RI	0.177	0.180	0.050	3.577	<b>0.000</b>	accepted



<b>RI → RB</b>	0.512	0.513	0.060	8.474	<b>0.000</b>	accepted
<b>SN → RI</b>	0.109	0.110	0.054	2.012	<b>0.045</b>	accepted

**Table 4****Discussions and Conclusions**

This study has developed and provides an integrated framework under the context of environment friendly behavior. The theoretical underpinning of the stated framework is based upon the well-substantiated theory of planned behavior (TPB) to foresee the consumers' recycling intention and behavior. Thus, the framework comprises the constructs of TPB; attitude, subjective norms and perceived behavioral control. However, two additional constructs, consumer knowledge and Perceived consumer effectiveness have also been included to increase the predictive power of the framework to predict their integrated impact on the intention and behavior of consumers from developing countries who are involved in recycling practices.

The empirical results of the study show that consumer knowledge and perceived behavioral control have an insignificant impact to trigger one's intention to go for recycling practices. It further indicates that a mere enough amount of consumer knowledge does not guarantee that the consumer will intend towards the performance of recycling behavior.

Results further indicate that even having high Perceived behavioral control (PBC) does not trigger the recycling Intention of a consumer. PBC refers to the notion that difficulty of an individual in engaging in certain behaviors and it is important to recognize the factors one might have control on. These factors include both internal as well as external control. Results of the present study show that there may be certain situational factors that have stronghold on an individual's behavior. These factors include recycling resources, dumping mechanisms, government support and availability of recycling facilities. In developing countries like Pakistan, there is a lack of available recycling facilities that cause hindrances for the activation of consumer recycling intention.

However, results indicate that perceived consumer effectiveness (PCE), Attitude and Subjective norm have shown a positive and significant impact that triggers one's recycling intention that transforms the recycling behavior of consumers. If elaborated further upon PCE, it's been indicated that if an individual critically perceives that his/her actions have long-term consequences on the environment then a consumer will establish a high level of intention towards recycling. Secondly, attitude, a significant construct of TPB has been proven significant in plenty of research studies in all fields of research, however, it has retained its validation in the domain of recycling behavior as well. For the present study, it has proven to be a significant predictor of recycling intention. This suggests that a high level of personal attitude towards recycling enhances the recycling intention positively. The reason for this positive attitude is that Pakistanis being a Muslim population, perceive themselves as religiously entitled to pro-social behavior that includes doing well for society (Dachurd et al.,2018). Lastly, the Subjective norm has also shown a significant impact on the recycling intention of a consumer, as stated earlier, in collective societies it is very important for an



individual to maintain the dignity of how and what their significant others perceive of him/herself. To hold the level of respect in one's society, an individual tends towards activities that keep one's self abide by the social norms for the collective wellbeing of the society. Hence, the present study has supported this proposition in the context of the recycling behavior of a consumer in Pakistan.

### **Theoretical Implications:**

Social and psychological factors that may have an impact on Pakistani consumers for prompting their intention for recycling behavior have not been examined in previous research. The present study is first of its kind to represent well-substantiated TPB with additional constructs in the domain of recycling behavior. The present study has been established to contribute both theoretical as well as managerial implications for the research audience of the study. Firstly, this study has developed an integrated and comprehensive model that portrays socio-psychological determinants of Pakistani consumers' recycling behavior. This study will be an initial point to set a research foundation in the domain of recycling from the context of consumer behavior, so that other researchers may build upon it to explore the relevance and significance of the stated subject from the lens of Marketers. Secondly, the empirically derived framework has been proposed that will contribute greatly to academic literature of consumer behavior. It would also contribute to the existing literature on Sustainable and Social Marketing for future research and development in the field. Lastly, this study aims to provide consumers' distinctive determinants of recycling behavior. It has further provided insights into consumers' attitudes, subjective norm and consumer effectiveness level that shape their actions towards Recycling intentions and how those intentions impacting a certain behavior.

### **Managerial Implications**

The novelty of this study is that the research stream on consumer recycling behavior has not been developed in Pakistan before. For this reason, this study is of optimum importance for marketers, policymakers, businesses, manufacturers, environmentalists, academicians NGOs and government. Firstly, it is of valuable contribution for marketers; they can streamline their marketing practices accordingly by running massive awareness campaigns. However, advertisers are recommended to make ads targeting consumers' attitudes, in this way a consumer can understand the benefits he/she can fetch by raising their effectiveness level, hence, creating a more positive subjective norm in Pakistani society. Secondly, the study provides implications for businesses of developing countries to know their customers in a better way. They are recommended to address consumers' required concerns to gain maximum complete advantages in the industry. Additionally, businesses should integrate their marketing strategies with social advertisement campaigns and effective CSR activities by improving their reverse logistics and supply chain management. Thirdly, the current research is of great significance for policymakers, they are recommended to devise laws and regulations for firms so that they may raise their intentions to go for recycling behaviors., they may also turn to emphasize more the intervention strategies,



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rewards, penalties and educational awareness that will help in building up recycling intentions. As findings show low perceived behavioral control, this finding indicates that the lack of effectiveness and convenience of recycling facilities is one of the primary reasons that impact consumers' recycling intentions. This has also been mentioned by Wu (2012). Thus, Government is another important audience of this study. As it is established that the waste management industry needs government policies for effective waste management facilities. There is a need for the allocation of recycling-related resources to encourage recycling practices and provide a better environment for both consumers and businesses of Pakistan. However, by following the empirically proven recommendations of this study; NGOs, environmentalists, and governments should collaborate to run awareness campaigns on effective waste management and disposal for the citizens of developing countries.

**Declaration of Conflicting Interest.**

It is declared that the authors have no conflict of interest.

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