Understanding the Factors Affecting Green Purchase Behavior of Consumers with Special Reference to Uttar Pradesh, India

Shailesh Kumar Kaushal[1]*, Priyaka Khanna[2], Pankaj Gupta[3]

[1]Department of Business Administration, University of Lucknow, Lucknow, U.P. India
[2]Department of Commerce, Khalsa College for Women, Ludhiana, Punjab, India
[3]Department of Commerce, Ramanujan College, University of Delhi, New Delhi, India

Abstract

The purpose of this study is to examine the factors affecting green purchase behavior of consumers in Uttar Pradesh, India. The Theory of Planned Behavior (TPB) contains five factors: attitude, subjective norm, perceived behavioral control, purchase intention, and purchase behavior to explain consumers' purchase behavior. This research investigates the determinants of the purchase intention for green products leading to the purchase behavior for the same. The data collected from 300 respondents for the study were analyzed using Confirmatory Factor Analysis and Structural Equation Modeling to validate the Theory of Planned Behavior. The study results indicate that attitude has a significant positive relationship with the purchase intention towards green products. The strength of the significant relationship between subjective norms and purchase intention was good. The relationship between perceived behavioral control and purchase intention was significant. The results of the last hypothesis were significant, which means there was a significant positive relationship between purchase intention and purchase behavior. This study is useful for policymakers, entrepreneurs, marketers, and academicians and gives insight into how to increase purchase intention and purchase for different kinds of green products.

Keywords: Confirmatory Factor Analysis, Purchase Behavior, Structural Equation Modeling, Theory of Planned Behavior.

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Introduction

Nowadays, there is a strong need to know the buying behavior of green products. The present research paper seeks to understand the significant components that influence the buying behavior of green products. It has increased quickly in the last couple of years, specifically attention concentrating on purchasing green products. It is crucial to know the relationship between sustainability and the consumption pattern of green products. As far as marketing is concerned, green purchase behavior has become a burning issue of research.

Theory of Planned Behavior (TPB) explains the three major components that explore buyer's behavior intention: the first one is an attitude, the second subjective norm, and the third component explains perceived behavioral control (Ajzen, 1991). The meaning of attitude, how a person evaluates positive and negative behavior. The second component, i.e., subjective norm, explains the social effect of the

theory of planned behavior and can be explained as "performing the behavior or perceived social pressure to perform the behavior". We can say, "A person's belief those others should engage in a certain behavior", and the meaning of perceived behavioral control is "The ease or difficulty of conducting behavior," and it is a sign of previous experiences and few possible hurdles. As far as the theory of planned behavior, buying behavior of buyer nothing but a role of intention for achieving the particular behavior and the purchase intention

of buyer is related to three components such as the attitude, perceived behavioral control and subjective norm of buyers and three factors related to behavioral, normative, and control beliefs of green buyers. This research paper is based on the theory of planned behavior, which explains buyers' buying behavior for green products. This theory has five major components, i.e., attitude, subjective norms, perceived behavior control, purchase intention, and purchase behavior. The researcher wants to know the direct impact of attitude, subjective norms, and perceived behavior control on purchase intention and then further purchase intention influences buyers' buying behavior for green products. This research study applied structural equation modeling, which is an appropriate technique to know buyers' buying behavior for green products. There are two approaches for structural equation modeling: first, approach covariance-based structural equation modeling, and partial least square structural equation modeling. In this research, the researcher used covariance-based structural equation modeling to test the measurement model and structural equation modeling' validity and to know the relationship of attitude, subjective norms and perceived behavior control with purchase intention and the relationship between purchase intention and purchase intention purchase behavior of green buyers.

LITERATURE REVIEW

There is no dearth of literature on the theory of planned behavior for green products, and it has been widely used to know the buying behavior of buyers for green products. The meaning of green buying behavior is related to ethical, sustainable, ethical, and eco-friendly products. Paço et al. 2013 explained that green purchase behavior is nothing but a combination of using less packaged products, recycling and biodegradable products, consuming local products, buying energy-efficient products, and protecting the environment. Theory of Planned Behavior explains three significant indicators of purchase intention: attitude, subjective norm, perceived behavioral control, and purchase intention predictor of purchase behavior. Based on literature, we are developing four hypotheses.

Attitude and Purchase Intention

As far as the attitude is concerned, it is the "degree to which a person has a favorable or unfavorable evaluation of the behavior in question" (Ajzen, 1991). A positive attitude of consumers towards green products related to healthy and environmentally conscious

goods. Some research studies described that females are a more favorable positive attitudes than male buyers (Paul & Rana, 2012). Based on the literature review, positive attitude towards green products enhance the purchase intention for green products.

H_1: There is a significant positive relationship between attitude and purchase intention for green products.

Subjective Norms and Purchase Intention

From the theory of planned behavior, there is a positive relationship between subjective norm and purchase intention for green products. Subjective normss can be formed through buyers' family members, friends, collogue, and relatives and these attribute influence individual buyers (Hansen et al., 2018: Yilmaz & Ilter, 2017; Singh & Verma, 2017; Du et al., 2017; Teng & Lu, 2016).

H_2: There is a significant positive relationship between subjective norms and purchase intention for green products.

Perceived Behavioral Control and Purchase Intention

Perceived behavioral control influences the purchase intention of green products. Many studies have been shown that there is a positive relationship between perceived behavior control and purchase intention of green products (Asif et al., 2018; Hansen et al., 2018; Savita & Verma, 2017: Lian, 2017; Maichum et al., 2017; Chekima et al., 2017; Oroian et al., 2017; Kapuge, 2016; Bryła, 2016; Chen et al., 2014;). Based on literature, there is a positive relationship between perceived behavior control and purchase intention of green buyers.

H_3: There is a positive relationship between perceived behavior control and purchase intention for green products.

Purchase Intention and Purchase Behavior

Purchase intention is the fourth component of the TBP. it is the cognitive state of mind that expresses the buyer's readiness to perform a given behavior. Purchase intention is the best indicator of purchase behavior. Brown (2003) suggested that buyers who buy green products have high awareness of green products than those who do not buy eco-friendly products. Results from the past studies also supported that purchase intention positively related to buyers' buying behavior for green products (Thogersen, 2007; e.g., Tarkiainen and Sundqvist, 2005; Saba and Messina, 2003).

H_4: There is a positive relationship between purchase intention and buying behavior for green products.

Objective: Study of purchase behavior of green products.

RESEARCH METHODOLOGY

The main objective of this research paper is to know the buying behavior pattern of buyers for green products and how the attitude, subjective norm, and perceived behavior control affect the purchase intention and then purchase intention influence the buying behavior. The researcher adopted and used theory of planned behavior scale (Ajzen, 2005) for measuring the buying behavior of buyers for green products. The TBP scale contains five factors to explain buyers' green purchase behavior, and this research instrument contains 17 variables. The first factor of TPB is attitude, and it has 4 variables, and other factors, subjective norms, perceived behavior control, purchase intention, and purchase behavior, have 3 variables, 4 variables, 3 variables, and 3 variables, respectively. All the variables were measured with 7-Likert scale (1 strongly disagree to 7 strongly agree) to know buyers' buying behavior for green products. The research data obtained from consumers in the three metro cities of Uttar Pradesh, India. The recommended and appropriate sample size for structural equation modeling was 300. The researcher applied a pilot study on 30 buyers and measured the research instrument's validity and reliability. This research paper tested four hypotheses of the theory of planned behavior scale using structural equation modeling. Descriptive statistics used for

17 variables, and construct validity and reliability were also checked, and there was no problem. The researcher confirmed the model in two ways. First of all, confirmatory factor analysis was conduct and then tested structural equation modeling to test the theory by using SPSS 20 and AMOS 16.

Data Analysis

The mean and standard deviation values of the 17 variables of the five constructs from the theory of planned behavior depicted in Table 1.

In the 7-point Likert scale, the average values of the five constructs as follows: attitudes towards green products are considerably good (AT = 5.867), subjective norms (SN = 4.120), perceived behavioral control items (PBC = 5.922), purchase intention (PI= 4.510) and purchase behavior (PB = 5.856).

Common Method Bias

The purpose of the standard method bias to know the systematic error of the data, which means that we can estimate how much biasedness in the data. Error or biases may come through the survey method or tool. The exploratory factor analysis used to find the biases in the data; through the Harman Single Factor technique researcher obtained one-factor variance of 15.569% (range from 5-18%), which indicates that there is no problem of biases in the data and appropriate for

Table 1: Descriptive statistics of buyers of green products

S.No.	Coding	Variables	Mean (SD)
1.	AT1	Buying a green product is favorable to me	5.86 (1.164)
2.	AT2	Buying a green product is a good idea	5.85 (1.057)
3.	AT3	Buying a green product is safe	5.82 (1.131)
4.	AT4	I pay little more money to buy green products	5.94 (1.118)
5.	SN1	My family members advise me that I should purchase green products	3.94 (1.860)
6.	SN2	My friends advise me that I should purchase green	4.46 (1.787)
7.	SN3	My collogue thinks that I should purchase green products	3.96 (1.734)
8.	PBC1	I believe that I can purchase green products	5.92 (1.206)
9.	PBC2	I want to purchase green products in future	5.93 (1.113)
10.	PBC3	I am capable, have the time and willingness to purchase green products	5.87 (1.152)
11.	PBC4	I have a lot of opportunities to purchase green products	5.97 (1.188)
12.	PI1	I want to buy green products for a safe environment	4.47 (1.806)
13.	PI2	I am planning to buy more green products	4.66 (1.657)
14.	PI3	I am planning to switch to buying the eco-friendly products	4.40 (1.754)
15.	PB1	I deliberately purchase green products	5.86 (1.137)
16.	PB2	I always green products whenever I have an option	5.82 (1.186)
17.	PB3	Choosing a green product is something I have done automatically	5.89 (1.238)

structural equation modeling. Indicating that common method bias was not seriously affecting the sample data.

Measurement Model or Confirmatory Factor Analysis

There are two steps to testing the structural equation modeling; in the first step researcher estimates the measurement model validity and then testing the structural equation modeling. Confirmatory factor analysis or measurement model used to estimate the model validity and reliability. A measurement model specified five factors of the planned behavior model theory and each variable high only one factor. AMOS software used with the maximum likelihood method to estimate the standardized solution of the measurement model, and all the 17 variable loaded highly corresponding factors. For good convergent validity, high value of t (CR) was found, and the Chi-square is a badness-of-fit measure, the the small value of chi-square means good fit and a high value shows bad fit. Through this analysis, the researcher found the following values:

1. X^2 / degree of freedom = 146.64/109 = 1.345,
2. Goodness-of-Fit (GFI) = 0.944,
3. Adjusted Goodness-of-Fit (AGFI) = 0.922,
4. Tucker–Lewis index (TLI) = 0.983,
5. Comparative fit index (CFI) = 0.987,
6. Normalized fit index (NFI) = 0.951,
   Root Mean square Error of Approximation (RMSEA) = 0.034.

The Root Mean square Error of Approximation (RMSEA) is badness of fitness; it measures the discrepancy per degree of freedom (Steiger, 1990; Browne & Cudeck, 1993). The lower value of RMSEA better fit and higher value indicates poor fit, the values of RMSEA should be below .08 or .09. All the fit indices comply with the values recommended by (Heir et al., 1998) and Arbuckle and Worthke (1995) except for chi-square/degree of freedom.

The Table 2 shows results, all the values greater than the cut-off values, it means our measurement model has a good fit for buying behavior of buyer behavior data (Figure 1).

Measurement Model's Validity and Reliability

The construct validity of the measurement model was assessed through convergent validity and discriminant validity. The TPB model has five constructs; attitude, subjective norm, perceived behavioral control, purchase intention, and purchase behavior for green products. Convergent validly estimated through standardized factor loading and all the five constructs values above the cut-off value, i.e., 0.714. Reliability of five factors estimated through Cronbach's alpha, values ranged from 0.859 to 0.909. Nunnally suggested Cronbach's alpha above 0.700. As far as measurement model validity and reliability is concerned, there is no problem, and measurement model fit this data.
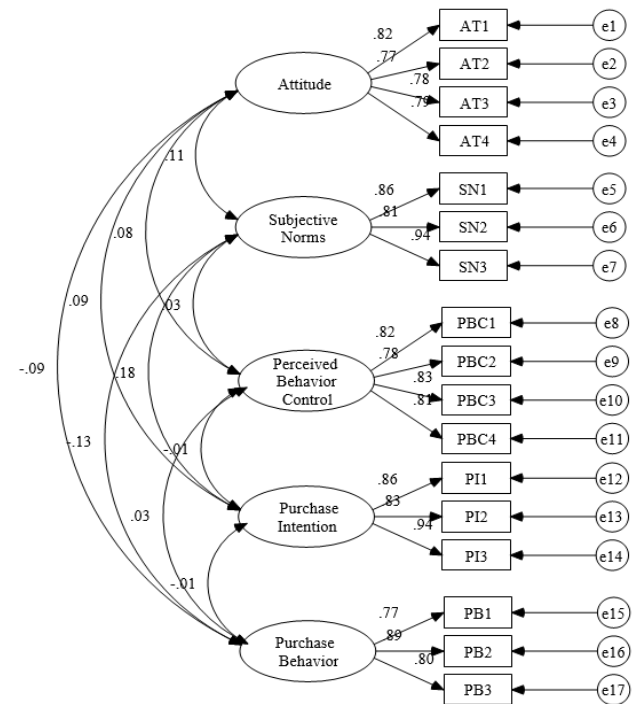
Figure 1: Measurement model of theory of planned behavior

Table 2: Fit indices of measurement model

Fit indices of constructs	Criteria	TPB model
Chi-square/df (degree of freedom)	< 2	1.345
Goodness of Fit Index (GFI)	> 0.95	0.944
Adjusted Goodness of Fit Index (AGFI)	> 0.95	0.922
Tucker Lewis Index (TLI)	> 0.95	0.983
Normed Fit Index (NFI)	> 0.95	0.951
Root Mean Square Error of Approximation (RMSEA)	< 0.08	0.034

Table 3: Reliability and validity of the measurement model

Constructs	Items	Chronbach' Alfa	Standardized Factor Loading	Composite Reliability	Average Variance Extracted	Communality or Delta (h^2) (Item Reliability or Squared factor loading)	Standardized error variance (u^2)
Attitude	AT1	86.70%	.817	86.69%	61.97%	$(.817)^2 = .667$	$1-(.817)^2 = .333$
	AT 2		.769			$(.769)^2 = .591$	$1-(.769)^2 = .409$
	AT 3		.777			$(.777)^2 = .603$	$1-(.777)^2 = .397$
	AT 4		.785			$(.785)^2 = .616$	$1-(.785)^2 = .384$
Subjective Norm	SN1	90.00%	.860	87.56%	75.67%	$(.860)^2 = .739$	$1-(.860)^2 = .261$
	SN2		.809			$(.809)^2 = .654$	$1-(.809)^2 = .346$
	SN3		.936			$(.936)^2 = .876$	$1-(.936)^2 = .124$
Perceived Behavior Control	PBC1	88.30%	.819	83.05 %	65.44%	$(.819)^2 = .670$	$1-(.819)^2 = .330$
	PBC2		.779			$(.779)^2 = .606$	$1-(.779)^2 = .394$
	PBC3		.827			$(.827)^2 = .683$	$1-(.827)^2 = .317$
	PBC4		.810			$(.810)^2 = .656$	$1-(.810)^2 = .344$
Purchase Intention	PI1	90.90%	.865	88.78%	77.37%	$(.865)^2 = .748$	$1-(.865)^2 = .252$
	PI2		.828			$(.828)^2 = .685$	$1-(.828)^2 = .315$
	PI3		.942			$(.942)^2 = .887$	$1-(.942)^2 = .113$
Purchase Behavior	PB1	85.90%	.771	80.81%	67.56%	$(.771)^2 = .594$	$1-(.771)^2 = .406$
	PB2		.893			$(.893)^2 = .797$	$1-(.893)^2 = .203$
	PB3		.797			$(.797)^2 = .635$	$1-(.797)^2 = .365$

From the above Table 3, all the values of Chronbach' alfa above the cut off value 0.7, means all the constructs are reliable. Hair et al. suggested the standardized factor loading should be greater than 0.700, the range of the standardized factor loading from 0.767 to 0.936 and significant. Convergent validity of the measurement model assessed through composite reliability and average variance extracted, and it should be greater than 0.700 and 0.500. The composite reliability and average variance extracted values of the measurement model ranged from 0.8305 to 0.8878 and 0.6197 to 0.7737, respectively.

Discriminant Validity

Discriminant validity tells us how much construct distinct from each other. For discriminant validity, all the squared inter-construct correlation should be less than the average variance extracted. Table 4 results shows that constructs truly distinct from each other.

Testing of the Structural Equation Model

In the second step, testing the structural equation model using AMOS statistical software. Structural equation modeling is applied to know how much our model fits prediction theory of the planned behavior model

Table 4: Discriminant validity

Constructs	AT	SN	PBC	PI	PB
AT	.6197				
SN	.0110	.7567			
PBC	.0060	.0006	.6544		
PI	.0080	.0320	.0001	.7737	
PB	.0080	.0160	.0010	.0001	.6756
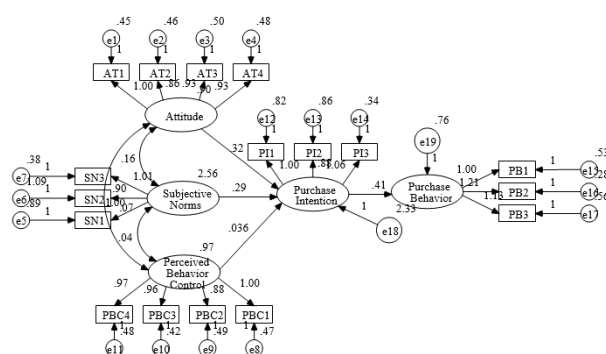
Figure 2: Structural Model of Theory of Planned Behavior TPB)

(Figure 2). To check the overall fitness of the theory of planned behavior model, the value of CMIN/D.F is 152.421/112= 1.36, which is significant, and the p-value

Table 5: Structural equation modeling

Path Description			Estimate	SE.	CR.	P-value
Purchase Intention	<---	Attitude	.320	.105	3.047	.000
Purchase Intention	<---	Subjective Norms	.290	.061	4.754	.000
Purchase Intention	<---	Perceived Behavior Control	.036	.099	.360	.719
Purchase Behavior	<---	Purchase Intention	.410	.036	11.388	.000

0.007. The goodness of indices also in acceptable range, Goodness-of-Fit (GFI) = 0.942, Adjusted Goodness-of-Fit (AGFI) = 0.921, Tucker–Lewis index (TLI) = 0.983, Comparative fit index (CFI) = 0.986. One badness of fitness index, i.e., Root Means square Error of Approximation (RMSEA) = 0.035. All the values are acceptable.

Table 5 shows that the results of the structural equation model and standardized path coefficient indicated a positive impact on four factors of the structural model. The first hypothesis shows that there is a positive and significant relationship between attitude and purchase intention. The second hypothesis is also positive and significantly related to the subjective norms and purchase intention for green products. In the third hypothesis, the researcher found there is no significant relationship between perceived behavior control and purchase intention, and the fourth hypothesis also significant, and it means there is a positive and significant relationship between purchase intention and purchase behavior. The TPB model supported three hypotheses out of the four.

Conclusion

This research paper is based on theory of planned behavior given by Ajen to understand buyers' buying behavior for green products. The attitude of buyers for purchasing green products positively affects purchase intention and subjective norms also positively related with purchase intention, but perceived behavior control did not significantly impact purchase intention, and purchase intention also positively influence the buying behavior of buyers for green products. The purchase behavior of buyers for green products is determined by various factors of the theory of planned behavior such as attitude, perceived behavior control, subjective norms, and purchase intention. The TPB model was tested on a large representative sample of buyers from Uttar Pradesh, India. The present study may be helpful for marketers who are dealing in green products, and they can frame marketing strategies to know the purchase intention and purchase behavior of buyers. The findings of this research will also be relevant to stakeholders who are dealing with green products. It's the responsibility of marketers to frame marketing campaigns that influence buyers' buying behavior and motivate them to buy green products. Policymakers also highlight the benefits of eco-friendly products and create an awareness campaigns to buy the products, and buyers who are not aware of the green products should be informed through labeling and certification.

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