

# **A Framework For Studying Consumer Intention Towards Green Consumerism In India**

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Doctoral Thesis Summary

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## **A Framework For Studying Consumer Intention Towards Green Consumerism In India**

**Ráamec pro studium postojů indických spotřebitelů směrem k  
udržitelné spotřebě v Indii**

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Zlín, December 2017

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Published by **Tomas Bata University in Zlín** in the Edition **Doctoral Thesis Summary**.

The publication was issued in the year 2017

Key words in English: *Green consumerism, purchase intention, social value, environmental knowledge, Sustainability, environmental concern, Green products, Structural Equation Modelling (SEM), Green consumers, Theory of Planned behaviour (TBL), India*

Key words in Czech: *Zelený konzumerismus, nákupní záměr, sociální hodnota, znalosti o životním prostředí, udržitelnost, environmentální znepokojení, zelené výrobky, modelování strukturálních rovnic (SEM), zelení spotřebitelé, teorie plánovaného chování (TBL), Indie*

Full text of the Doctoral thesis is available in the Library of TBU in Zlín.

ISBN 978-80-7454-716-4

## **ABSTRACT**

Over the last years, research about sustainability has been interesting due to growing importance of green orientation in the consumer purchasing process around the world. People are changing their trends and way of lifestyle in a more conscious way paying more attention towards green oriented behavior worldwide compared to in the past. Understanding consumer expectations and new purchasing trends related to green purchasing behavioral trends within the Indian consumers by means of identifying by Theory of Planned Behavior (TPB) constructs. The present research attempts to understand the consumers' intention towards buying green consumerism in a developing nation, India. The study uses Theory of Planned Behaviour (TPB) as its theoretical framework and further attempted to extend the TPB model by incorporating additional constructs such as (social value, environmental knowledge, environmental concern and value for money) in it. Data was collected using survey based method using structured questionnaire among 339 consumers and was analyzed using Structural Equation Modeling (SEM) for testing the hypothesized model. The finding reported the utility of using TPB framework with additional constructs in predicting the consumers' intention that will lead to purchase intention. The framework not only studies the independent relationship but also the relationship between all the constructs that might lead to change of consumers' perception towards green purchase behavior. The author tested three models to testify the direct effects of the constructs with the purchase intention, then studied the mediating effects and lastly the relationship with all the constructs in the hypothesized model. The results of each constructed model have shown interesting outcomes. At the end, the implications for businesses and marketers and the policy makers has been discussed with further scope of research in this field.

## ABSTRAKT

V posledních letech byl výzkum v oblasti udržitelnosti zajímavý kvůli rostoucímu celosvětovému významu ekologické orientace v procesu nákupu spotřebitelů. Lidé pozitivně mění své trendy a životní styly s tím, že věnují více pozornosti celosvětově orientovanému udržitelnému chování ve srovnání s minulostí. Pochopení očekávání spotřebitelů a nových nákupních trendů, souvisejících s trendy chování v oblasti ekologických nákupů v rámci indických spotřebitelů je možné prostřednictvím identifikace konstrukce Teorie plánovaného chování (TPB). Prezentovaný výzkum se snaží porozumět záměrům spotřebitelů při nakupování zelených produktů v rozvíjející se Indii. Studie využívá jako teoretický rámec teorii plánovaného chování (TPB) a dále se pokouší rozšířit model TPB o začlenění dalších prvků, jako jsou sociální hodnota, znalosti o životním prostředí, environmentální znepokojení a peněžní hodnota. Data byla shromážděna metodou průzkumu pomocí strukturovaného dotazníku mezi 339 spotřebiteli a byla analyzována pomocí modelování strukturálních rovnic (SEM) pro testování hypotetického modelu. Závěry potvrzují užitečnost používání rámce TPB s dalšími prvky při předvídání záměrů spotřebitelů při nakupování. Rámec studuje nejenom nezávislý vztah, ale také vztahy mezi všemi prvky, které by mohly vést ke změně vnímání spotřebitelského chování při zelených nákupech. Autorka testovala tři modely, které potvrdily přímé vlivy prvků na spotřebitelské nakupování, poté byly zkoumány zprostředkovací efekty a nakonec vztah mezi všemi prvky v hypotézovém modelu. Výsledkem každého modelu byly zajímavé výstupy. V závěru jsou diskutovány další dopady výzkumu v této oblasti a důsledky pro podniky, obchodníky a tvůrce politik ve firmách.

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## LIST OF ABBREVIATION

<b>GRDI</b>	Global Retail Development Index
<b>TSMG</b>	Tata Strategic Management Group
<b>TBP</b>	Theory of Planned Behaviour
<b>SEM</b>	Structural Equation Modelling
<b>AVE</b>	Average Variance Extracted
<b>SV</b>	Social Value
<b>VM</b>	Value for Money
<b>EC</b>	Environmental Concern
<b>EK</b>	Environmental Knowledge
<b>CFA</b>	Confirmatory Factor Analysis
<b>NFI</b>	Normed Fit Index
<b>CSR</b>	Corporate Social Responsibility
<b>FMCG</b>	Fast moving consumer goods

# 1. INTRODUCTION

Green marketing is getting recognized as a broader concept by scientific and is defined in various terms all over the world. Polonsky (1995), in his research has defined green marketing as a marketer's attempt to develop strategies targeting the environmental consumers. Green marketing is the holistic management process responsible for identifying and anticipating satisfying the needs of customers and society in a profitable and sustainable way (Peattie & Crane, 2005; Crane, 2002). Most importantly, it refers to the market products that are less toxic are more durable, contain reusable materials or are made of recyclable materials (Ottman, 1992). Environmentalism started to broaden with the increase acceptance of the concept of sustainable development: expanding economic growth to meet societal needs while protecting the environment for present future and generations. Nowadays, corporations are urged to play a role in achieving sustainable growth and building greener economy. Big brands have been influential forces in the retail sector, stimulating green consumerism through marketing and retail chains.

Environmentally sustainable or “green” purchasing decisions offer a chance to reduce the negative environmental impact by adopting environmentally friendly products (Leonidou et al., 2013). The term green is alternatively known as “ecofriendly”, “environmentally friendly”, or “sustainable” (Kim and Chung.,2011).

In the household consumption, groceries account for a substantial share, and up to one-third of the environmental impact is mainly due to packaging materials (Koenig-Lewis et al., 2014). This trend seems to be catching in India, which is generating waste products at a rather alarming rate, much faster than the natural degradation process and is using resources at a speed that exceeds the rate at which these materials are being replaced (Pagiaslis,2014); Nandy et al., 2015). However, Indian consumers are more conscious of their environmental impact than consumers from Brazil, China, Australia, Russia, Canada, America and Germany (Greendex, 2014).

Most of the Indian states have banned the use of plastic bags due to environmental degradation (Earth Policy Institute, 2013; Clapp and Swanston, 2009) and shopping



malls are charging extra money for plastic bags (Yadav and Pathak, 2016). Thus, environmentally sustainable or “green” purchasing decisions in everyday buyer behavior will have a great impact if they can substitute high-impact products with the eco-friendly products.

Environment has become a persistent public issue (Baumann & Rex, 2007) with some calling in the 1990s as the “Earth decade”, or “the decade of the environment” (Bradley, 2007). Some environmental problems have been link to human consumption, and this has brought the environmental awareness in many parts of this world has increased and this has been further translated into their attitude towards purchasing green products (Pagiaslis,2014). Consumers are demanding green options and are willing to pay a premium price (Charter & Polonsky, 1999). This has resulted in the trend of environmental sustainability, which in turn has brought changes in consumer demands and behavior (Mendleson and Polonsky, 1995). For environmental protection, diverse types of behaviors can be opted and buying green products is among one of them (Laroche et al, 2001). By the time consumers have started showing concern for the environment and preferring eco-friendly products and services (Nimse et al., 2007) and such concerns and awareness about environment has created eco-friendly consumption called ‘green consumerism’ (Moisander, 2007).

Green environmental issues and green awareness in terms of food choice, green management, green branding, and green consumer choices have been of topical interest worldwide for some time now (Lin & Huang, 2012). Although the research on green awareness or green orientation is relatively limited, especially in developing countries such as India. India is big economy where the education level is relatively high and the economic condition is growing at a steady rate. Also, India is fast growing economy due to its huge market base and that is the reason, it attracts lots of industrialists and foreign companies. Interestingly, India once upon an agricultural based economy but it has advanced to a technologically advance economy in recent years as well.

Also, the whole retail industry has lived an intense evolution over the past three decades due to the strong growth in international markets to rising of new competitors and to the continuous and evolving change in consumer behavior (Ajzen, 1991). The green orientation is not just limited to environmental issues now, it is widely being recognized in the food and retail sectors as well; because now not just the taste matters but the health, quality standards and awareness about the product and

surroundings has a crucial role to play in it. That can satisfy more complex needs such as the hedonic and emotional aspects plus the utility, healthy and the respect for environment (Crescimanno and Galati, 2014; Naidoo, V., 2010). In this context, marketing innovation can be considered as tool for maintaining competitive advantage and achieving growth (Chen, 2006) as well as a strategy to overcome market crisis (Naidoo, 2010). This has attributed to the rise of the “green” consumer marking shift in the pattern of consumer purchasing towards a more sustainable consumption and awareness about the surroundings (Ristovska, 2010). In this context, marketing innovation can be considered as a tool for maintaining competitive advantage and achieving growth (Chen, 2006) as well as a strategy to overcome market crisis (Naidoo, 2010). Numerous studies have been conducted to establish the influence of consumer attitude towards green products and its impact on customer satisfaction in the Western countries but few studies of consumer green marketing awareness and purchase intention have been done in Asian countries, including India (Haytko & Matulich, 2008; Menichelli et al., 2014).

## **1.1 India’s retail sector**

GDP growth, improved ease of doing business, and better clarity regarding foreign direct investment (FDI) regulations puts India in 2nd place. India is now the world’s fastest-growing major economy, overtaking China. Retail demand is increasingly driven by urbanization, an expanding middle class, and more women entering the workforce.

India with a population of 1.31 trillion accounts for \$1.01 trillion retail sales and the CAGR retail sales of during 2013-2015. As per the GRDI window of opportunity from the year 2016, clearly shows that India is among the peak countries for the retail opportunity since 2009. As per the reports and the characteristics of Indian consumers, they seek organized formats and greater exposure to global brands. It means, that they are open to experience new brands and new trends provided with systemized exposure in an organized manner. In other words, consumer awareness is an important factor for a new trend.

India’s packaged food and beverage sector provides and consumer goods items provides an attractive market opportunity with multiple challenges and multiple rewards. India packaged food and beverage market trend has seen a growth of 14-15% during the last five years from 2010 to 2015 projected by Tata Strategic

Management Group (TSMG) in the recent past. The implementation of the Food Safety and Standards act is expected to facilitate delivery of good quality to all consumers. As per Kearney (2016) India consumers are trading up and willing to pay for better quality, health and convenience driven products, as well as enhanced product features and designs.

## 2. Theoretical Framework

Based on the theoretical context and scope of study, a conceptualization of effective behavioural pattern in the event of emerging themes of sustainable development and to create a framework about awareness of consumers leading to green purchase intention would immensely help to maintain responsible consumption and production processes in the future.

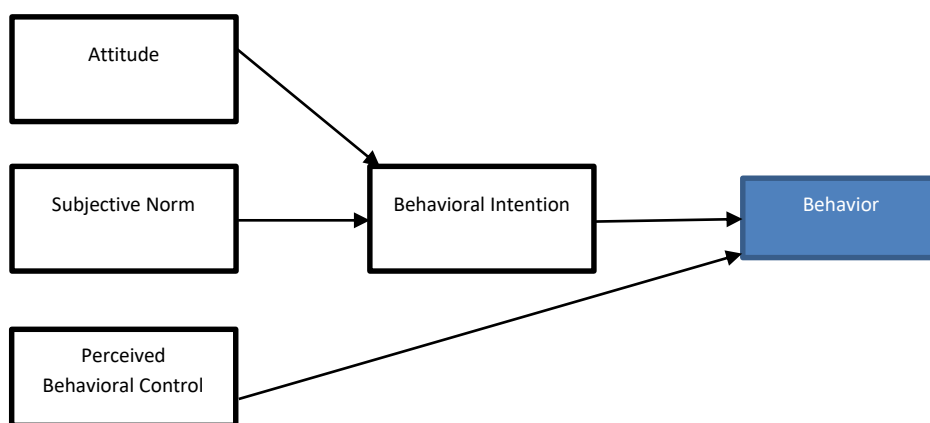


Fig 1: Theory of planned behavior (TPB) (adopted from Ajzen,1991)

For carrying out this research Theory of Planned Behaviour model is used to conceptualize the framework in determining consumer mindset towards green purchase in Indian context. Theory of Planned Behavior (TPB) was proposed by Ajzen in 1991. This model is quite renowned between academicians to understand the individual behavior. TPB has been useful in predicting consumer intention as well as behavior in a wide range of green/pro-environmental areas, such as green hotels and restaurants (Chen and Tung, 2014; Kim et al., 2013), energy efficient products (Ha and Janda, 2012), green products (Kalafatis et al., 1999; Chan and Lau, 2002), organic products (Kim and Chung, 2011; Zagata, 2012) proved its applicability and robustness.

Kalafatis et al. (1999) also measure the appropriateness of TPB in determining consumers' intention to buy eco-friendly/green products in two distinct cultures (Greece and UK). Although the TBP assumes that behavioral intention is determined by three factors, namely; attitude, subjective norm and Perceived behavioral control (PBC).

### **3. Research Problem and Research Objective**

The theoretical underpinnings are drawn from the Theory of Planned Behavior with an integrated model incorporating components from 'Theory of planned behavior model based on the assumption that consumer choice is a function of multiple values. As per our model these are categorized as social value, environment concern, environment knowledge and value for money in order to perform purchase behavior as additional constructs. Gilg et al. (2005) also pointed out that green consumption is relatively a new area in the research and as such definitive results and conclusion are lacking regarding the role of environmental concern on green consumption. However, there are not many studies which have considered behavioral variables as determining variables to understand the relationship between one another.

#### **3.1 Research Objective and Hypotheses Development**

The objective of the dissertation thesis is to understand the impact of influential factors leading to consumer expectations related to green purchase intention within the Indian consumers and to examine the relationships on how it is related to social value, environmental knowledge, environmental concern, and value for money leading to green consumerism or the green purchase intention. The thesis mainly studies are divided into three objectives categorized under:

#### **3.2 Hypotheses Development**

##### **1<sup>st</sup> Hypotheses: Testing the direct effects of all constructs with purchase intentions**

The researcher wants to investigate, if there are any direct effect of the three variables social value, environmental concern and environmental knowledge with purchase intention.

**H1A:** Social value is positively related to purchase intention

**H1B:** Environmental knowledge is positively related to purchase intention

**H1C:** Environmental concern is positively related to purchase intention

**2<sup>nd</sup> Hypotheses: The second set of hypotheses is about the mediating effects of value for money**

The inclusion of ‘value for money’ is used as mediating construct in testing the hypothesized model with other constructs such as (social value, environ. concern and environ. knowledge) will be interesting to observe because at the end of any decision making or before the purchase behavior intention, the underlying factor can be considered as the utility or the cost you pay for a product or service.

**H2A:** The value for money mediates the relationship between social value and purchase intention

**H2B:** The value for money mediates the relationship between environmental knowledge and purchase intention

**H2C:** The value for money mediates the relationship between the environmental concern and purchase intention

**3<sup>rd</sup> Hypotheses: The third hypotheses is about the relationship between all the three variables (social value, environmental knowledge and environmental concern)**

As per the authors’ understanding from the previous studies, it is found that there exists a strong relationship between social value with the consumers’ purchase behavior. With an attempt to the fact, the author is trying to establish a relationship to address a systematic process between the constructs. Assuming, there might be a relationship that social value will lead to environmental concern, then environmental concern will lead to environmental knowledge.

**H3A:** Social value is positively related to environmental knowledge

**H3B:** Social value is positively related to environmental concern

**H3C:** Environmental concern mediates the relationship between social value and environmental knowledge

### 3.3 Conceptual Framework

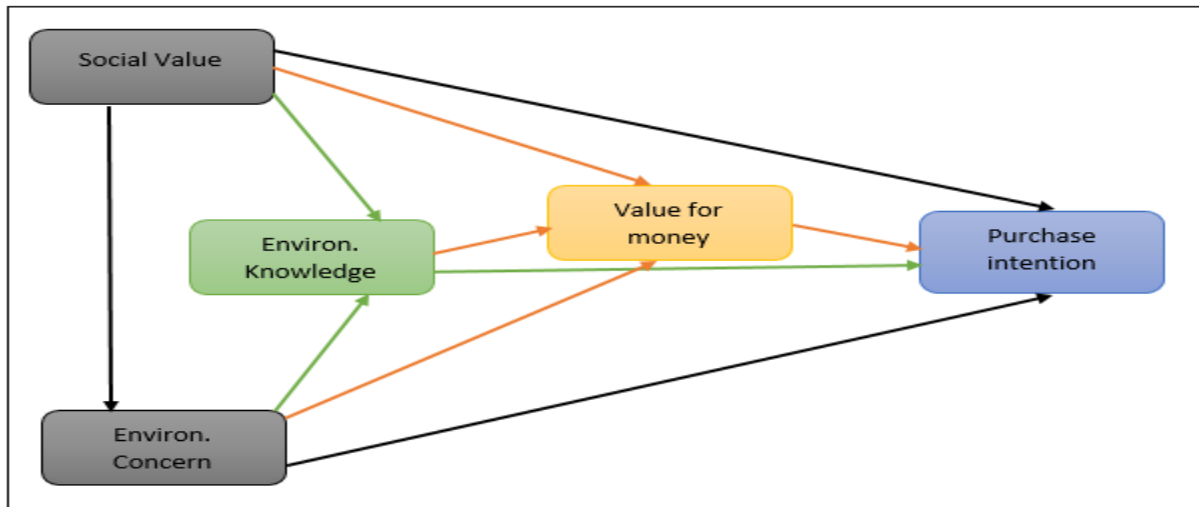


Fig 2: Author's own interpretation of conceptual framework, Source: own

## **4. Methodology**

### **4.1 Data Selection**

The data employed in this thesis come from a survey conducted among consumers in the in West Bengal. Mainly, a structured questionnaire which was developed by previous researchers based on validated questions was used to collect data. Cooper (2002) points out that a direct interview is more reliable approach in contingent valuation studies. The author offered one-on-one interactions with the consumers and provided an opportunity to explain some of the questions to respondents with average literacy levels. Using convenient sampling, 339 consumers were selected from these three urban areas to participate in the survey as these areas are representatives of the major urban consumer market in West Bengal. Primary data were collected for the purpose of this research. As per that, primary survey was conducted in May to August 2017 targeting consumers who most often visit shopping malls and do regular shopping by themselves. Covering all the measurements of the study, a comprehensive questionnaire was sent individually to consumers who have purchased products which come under all consumer goods. The measuring constructs and the questions for each construct is measured in 7-point Likert scale.

### **4.2 Sample size calculation**

To fit the sample size to conduct the analysis, 339 respondents were chosen fitting the criteria of the research objective. As per Sekaran (2003) sample size larger than 30 and less than 500 are appropriate for most of the research.

In order to confirm the appropriate sample size, Kline (2011) also suggested that there should be a minimum of 10 cases per parameter/ items required in a statistical estimate. In our analysis, there are 17 items considered. Therefore, a sample size of minimum 170 responses is required. This research goes beyond the minimum sample size required for conducting the studies. Moreover, in our case we have a sample size of 339 responses which is a good fit to conduct the analysis.

### **4.3 Questionnaire**

The data or the score was calculated through Likert scale. In order to make the calculation more meaningful, appropriate Likert scale has been chosen as per the related question for the analyses of the data as shown in Table.1 and then the Z-normal distribution test was used to achieve the results.

## **4.4 Analytical techniques**

Structural Equation modelling (SEM) is a multivariate technique, which estimates a series of inter-related dependence relationships. In this study, all the three hypothesized models are tested statistically in a simultaneous analysis between all the variables in the entire system to test the entire conceptual framework to determine the extent to which it is consistent with the data. If the goodness of fit is adequate, then it means that there is a postulated relation among the variables. In this thesis, all the 17 constructs are tested through SEM. A Structural Equation Modeling was applied to test the overall model fit indices. Data analysis was done through the application of AMOS 22.0.

## **4.5 Research conceptualization and the outputs expected**

In addition, from the previous conceptualizations about credentials, none of the studies have analyzed the systematic pathway that might lead to green purchase intention behavior with the help of each individual constructs. The proper understanding and systematic progress to analyze each factor will facilitate better understanding of the consumers' mindset to encourage green consumerism in India.

As per our model these are categorized as social value, environment concern, environment knowledge and value for money in order to perform purchase behavior intention summarized as under in different aspects and possible relationships will be determined on the basis of these three conceptual diagrams. In order to carry on this study, mediating variable is also examined as in figure to understand what leads to what and to get a synchronized idea of consumer perception and behavior in a specific context.

# **5. Results and Analysis**

## **5.1. Descriptive overview**

The descriptive statistics for each construct in the measurement instrument are provided in the Table 2. The mean of all constructs ranges from 4.25 to 5.40 which are above average value according to 7-point Likert scale. With 1 as “strongly disagree” and 7 as “strongly agree” and 4 as “neutral”. As it is evident from the table



of the descriptive analysis, most of the consumers are toward more positive or ‘Agree’ continuum with statements in the measurement scale.

Purchase intention (PI) is the constructs with the highest mean of 5.4. This might suggest that most of the consumers have an overall positive attitude for green purchase intention. Environmental knowledge (EK) seems to have more positive impact on consumers than environmental concern (EC) among the Indian consumers. Among the social value (SV) and value for money (VM), Social value seems to have more impact among the consumers’ over the value for money of total mean 4.2 compared to social value is (4.7). Other details about descriptive can be seen from **Table 1**.

**Table 1. Descriptive Statistics**

	Mean	Std. Deviation	Analysis N
SV1	4.82	1.175	339
SV2	4.58	1.083	339
SV3	4.79	1.267	339
SV4	4.67	1.100	339
EK1	5.28	1.041	339
EK2	5.26	1.145	339
EK3	5.24	.965	339
EK4	5.16	.982	339
EC1	5.02	1.288	339
EC2	5.10	1.279	339
EC3	4.94	1.242	339
VM1	4.25	1.737	339
VM2	4.09	1.713	339
VM3	4.31	1.682	339
PI1	5.40	1.256	339
PI2	5.01	1.308	339
PI3	5.08	1.382	339

## 5.2. Constructs reliability and validity

Construct reliability refers to the degree to which a set of indicators, the questions are consistent and reflects stability across all the constructs such as (social value, environment knowledge, environment construct, value for money and purchase intention) in our study of interpretation. It is the classical model of test validity which

measures the appropriateness of the intended constructs in the conceptualized framework.

Cronbach's alpha is the most commonly used for assessing the reliability of a construct. The Cronbach's alpha of each construct in the research model is presented in Table 3. As indicated in Table 3, all the Cronbach's alpha for all constructs exceeds 0.80, satisfying the general recommended level of 0.70 for the research indicators (Cronbach, 1951). Therefore, all the constructs show a good reliability. It means all the questions perfectly fits and actually describes the given constructs as shown in **Table 2**.

**Table 2. Convergent validity**

	<b>Cronbach's alpha</b>	<b>AVE</b>
<b>Socialvalue</b>	0.919	0.740
<b>Envir.Knolwkedge</b>	0.909	0.715
<b>Environ.Concern</b>	0.912	0.777
<b>Valueformoney</b>	0.882	0.715
<b>purchaseintention</b>	0.934	0.824

Between all the scores calculated, the Cronbach's alpha score of purchase intention (**PI**) is the maximum of (**0.934**) and the minimum is of value for money (**VM**) of (**0.882**) which is also a good score.

Convergence validity refers to how well different indicators using for measuring a construct converge, indicating that a single dimension of meaning is being measured. Convergent validity can be assessed by examining the factor loading and the average variance extracted (AVE) of the constructs (Fornell and Larcker, 1981).

All the indicators have significant loading onto the constructs which they expected to measure ( $p < 0.01$ ) as in **Table 3**.(Regression weights) which is a good fit and matches all the constructs with the appropriate variable.

Moreover, as presented in **Table 2.**, the **AVE** for each construct is greater than 0.50, which confirms the convergence validity of all the constructs.

**Table 3. Regression Weights of the measurement model:  
(Group number 1 - Default model)**

	Estimate	S.E.	C.R.	P	Label
Q4 <--- Socialvalue	.945	.049	19.438	***	par_1
Q3 <--- Socialvalue	1.141	.054	21.166	***	par_2
Q2 <--- Socialvalue	.894	.036	24.788	***	par_3
Q1 <--- Socialvalue	1.000				
Q8 <--- Envir.Knolwkedge	.859	.050	17.336	***	par_4
Q7 <--- Envir.Knolwkedge	.866	.041	21.264	***	par_5
Q6 <--- Envir.Knolwkedge	1.000				
Q17 <--- purchaseintention	1.000				
Q16 <--- purchaseintention	.918	.035	25.895	***	par_6
Q15 <--- purchaseintention	.913	.032	28.477	***	par_7
Q13 <--- Valueformoney	.895	.049	18.128	***	par_8
Q12 <--- Valueformoney	1.000				
Q10 <--- Environ.Concern	1.047	.045	23.535	***	par_9
Q9 <--- Environ.Concern	.994	.048	20.737	***	par_10
Q5 <--- Envir.Knolwkedge	.953	.049	19.338	***	par_21
Q11 <--- Environ.Concern	1.000				
Q14 <--- Valueformoney	.884	.048	18.263	***	par_22

Discriminant validity refers to the fact that indicators for different constructs should not be so highly correlated across constructs which can be lead to the constructs overlap. Discriminant can be examined by comparing the construct's square root of AVE with its square correlation with other constructs (Fornell and Larcker, 1981). As presented in **Table 4**, the square root AVE value of each construct is greater than its square correlation with other constructs, which support the discriminant validity of the constructs.

**Table 4. Discriminant Validity**

Socialvalue	Envir.Knolwkedge	Environ.Concern	Valueformoney	Purchase intention
<b><u>0.862</u></b>				
0.816	<b><u>0.845</u></b>			
0.779	0.805	<b><u>0.881</u></b>		
0.547	0.419	0.399	<b><u>0.846</u></b>	
0.861	0.795	0.879	0.545	<b><u>0.908</u></b>

### 5.3. Testing the measurement model

Measurement model validity depends on establishing acceptable levels of goodness-of-fit for the measurement model and finding specific evidence of construct validity. After validation of the measurement instrument was satisfied, the results of the Confirmatory Factor Analysis (CFA) using *Amos 22* was used to evaluate the model fit of the measurement model to confirm the hypothesized structure. The measurement comprises of five factors. Each factor is measured by a minimum of three to a maximum of four observed variables, the reliability of which is influenced by random measurement error, as indicated by the associated error term. Each of these observed variables is regressed into its respective factor. Finally, all the five factors are shown to be inter-correlated.

Confirmatory Factor Analysis (CFA) is executed to assess how the proposed research model as shown in Figure 11. fits with the data collected from the samples. Previous studies suggest using more than one goodness-of-fit index to evaluate the model fit of the proposed model (Fornell and Larcker,1981). Therefore, in this study set of goodness-of-fit indices are used.

The Chi-square is significant  $\chi^2 = 199.104$  ( $p = 0.00$ ), the relative Chi-square ( $\chi^2/df = 1.94$ ) (smaller than 2) show the acceptable fit with large sample as shown in **Table 5**.

**Table 5. CMIN**

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	49	<b>199.104</b>	104	.000	<b>1.914</b>
Saturated model	153	.000	0		
Independence model	17	5561.709	136	.000	40.895

Other indices also show the good fit for the research model according to the conventional thresholds. The normed fit index (NFI) = 0.964, the comparative fit index (CFI) = 0.982, the Tucker-Lewis coefficient index (TLI) = 0.977 (NFI, CFI, TLI all > 0.95); where (0.95) is considered the threshold as shown in Table 6 while conducting baseline comparisons.

**Table 6. Baseline Comparisons**

Model	NFI	RFI	IFI	TLI	CFI
	Delta1	rho1	Delta2	rho2	
Default model	<b>.964</b>	.953	.983	<b>.977</b>	<b>.982</b>
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

### **Normed Fit Index (NFI)**

The NFI is one of the original incremental fit indices introduced by Bentler and Bonnet (1980). It is a ratio of the difference in the value for the fitted model and the null model divided by the value for the null model. It ranges between zero to one. A Normed fit index of one indicates perfect fit.

### **Relative Fit Index (RFI)**

The relative Fit Index (RFI) represents a derivative of the NFI; as with both the NFI and CFI, the RFI coefficient values range from zero to one with values close to one indicating superior fit (Hu and Bentler, 1999).

### **Tucker Lewis Index (TLI)**

The Tucker Lewis Index (Tucker and Lewis, 1973) is conceptually similar to the NFI, but varies in that it is actually a comparison of the Normed chi-square values for the null and specified model, which to some degree takes into account model complexity. Models with good fit have values that approach one (Hu and Bentler,1999), and a model with a higher value suggests a better fit than a model with a lower value.

### **Comparative Fit Index (CFI)**

The CFI is an incremental fit index that is an improved version of the NFI (Bentler, 1990; Bentler and Bonnet, 1980; Hu and Bentler,1999). The CFI is Normed so that values range between zero to one, with higher values indicating better fit. Because the CFI has many desirable properties, including its relative, but not complete, insensitivity to model complexity, it is among the widely used indices. CFI values above 0.90 are usually associated with a model that fits well. But a revised cut off value close to 0.95 was suggested by Hu and Bentler (1999).

### **Tucker Lewis Index (TLI)**

The Tucker Lewis Index (Tucker and Lewis, 1973) is conceptually similar to the NFI, but varies in that it is actually a comparison of the Normed chi-square values for the null and specified model, which to some degree takes into account model complexity. Models with good fit have values that approach one (Hu and Bentler, 1999), and a model with a higher value suggests a better fit than a model with a lower value.

The root mean square residual (RMR) = 0.061 and root mean square error of approximation (RMSEA) = 0.052 (both < 0.08) as shown in Table 7 and Table 8.

### **The Goodness-of-fit Index (GFI & AGFI)**

The goodness-of-fit index (GFI) was the very first standardized fit index (Joreskog & Sorbom, 1981). It is analogous to a squared multiple correlation except that the GFI is a kind of matrix proportion of explained variance. Thus, GFI = 1.0 indicates perfect model fit, GFI > .90 may indicate good fit, and values close to zero indicate very poor fit. However, values of the GFI can fall outside the range 0–1.0. Values greater than 1.0 can be found with just identified models or with over identified models with almost perfect fit; negative values are most likely to happen when the sample size is small or when model fit is extremely poor.

**Table 7: RMR, GFI**

Model	RMR	GFI	AGFI	PGFI
Default model	<b>.061</b>	.936	.906	.636
Saturated model	.000	1.000		
Independence model	.868	.155	.050	.138

### **Root Mean Square Error of Approximation (RMSEA)**

Root Mean Square Error Approximation (RMSEA) was first proposed by Steiger and Lind (1980). It is one of the most widely used measures that attempts to correct for the tendency of the GOF test statistic to reject models with a large sample or a large number of observed variables. Thus, it better represents how well a model fits a population, not just the sample used for estimation. Lower RMSEA values indicate better fit. Earlier research suggest values of <0.05 (Browne and Cudeck, 1993), Hu and Bentler (1999) have suggested value of <0.06 to be indicative of good fit.

**Table 8: RMSEA**

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	<b>.052</b>	.041	.063	.367
Independence model	.344	.336	.351	.000

In sum, the data collected from the consumers are fitting well with the proposed conceptual model of testing the direct effects of all constructs with purchase intentions from goodness of fits indexes for the research model.

#### 5.4. Testing the Structural model

Confirmatory Factor Analysis (CFA) is executed to assess how the proposed research model as shown in Figure 12. fits with the data collected from the samples. Previous studies have suggested to use more than one goodness-of-fit index to evaluate the model fit of the proposed model (Fornell and Larcker,1981) as it has been done in the previous measurement model. To provide with the good fitness model, this study has included the set of goodness-of-fit indices.

The Chi-square is significant  $\chi^2 = 196.992$  ( $p = 0.00$ ), the relative Chi-square ( $\chi^2/df = 1.876$ ) (smaller than 2) show the acceptable fit with large sample as shown in **Table 9**.

**Table 9: CMIN**

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	48	196.992	105	.000	1.876
Saturated model	153	.000	0		
Independence model	17	5561.709	136	.000	40.895

Other indices also show the good fit for the research model according to the conventional thresholds. The normed fit index (NFI) = 0.965, the comparative fit index (CFI) = 0.983, the Tucker-Lewis coefficient index (TLI) = 0.977 (NFI, CFI, TLI all > 0.95); where (0.95) is considered the threshold as shown in Table 10 while conducting baseline comparisons.

**Table 10: Baseline Comparisons**

Model	NFI	RFI	IFI	TLI	CFI
	Delta1	rho1	Delta2	rho2	
Default model	.965	.954	.983	.978	.983
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

**Table 11: RMR, GFI**

Model	RMR	GFI	AGFI	PGFI
Default model	.061	.937	.909	.643
Saturated model	.000	1.000		
Independence model	.868	.155	.050	.138

The root mean square residual (RMR) = 0.061 and root mean square error of approximation (RMSEA) = 0.051 (both < 0.08) as shown in Table 11 and Table 12.

**Table 12: RMSEA**

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.051	.040	.062	.431
Independence model	.344	.336	.351	.000

In sum, the data collected from the consumers are fitting well with the proposed structural model of testing the direct effects of all constructs with purchase intentions from goodness of fits indexes for the research model.

In order to get a better understanding and interpretation of the values if structural modeling is used to test the model fitness to the various variable in the hypothesized



model as in Figure 3. Before running the model, we need to know why SEM is important. As per Bryne (2013), Structural Equation Modeling (SEM) is a multivariate technique, which estimates a series of inter-related dependence relationships simultaneously. The term Structural Equation Modeling conveys that the causal processes under study are represented by a series of structural (i.e. regression) equations, and that these can be modeled pictorially to enable a clearer conceptualization of the study. The hypothesized model can be tested statistically in a simultaneous analysis of the entire system of variables to determine the extent to which it is consistent with the data. If the goodness-of-fit is adequate, the model argues for the plausibility of postulated relations among the variables. In our results all the goodness of fits has been achieved. the structural model defines relations among the unobserved variables. Accordingly, it specifies the manner by which particular latent variables directly or indirectly influence (i.e. 'cause') changes in the values of certain other latent variables in the model. Therefore, it is concerned with how constructs are associated with each other and is used for hypotheses testing. In this study data was analyzed using Fornell and Larcker (1981) two step approach whereby the estimation of the confirmatory measurement model precedes the estimation of the structural model.

The SEM is used to interpret the results from of a complex model and then generalizes to give s meaningful result. After running our model in SEM, we found the results as interpreted below and the model has achieved a high effective rate of 'purchase intention 'PI' to 89% The results after between each construct can be found in Figure 13. described below.

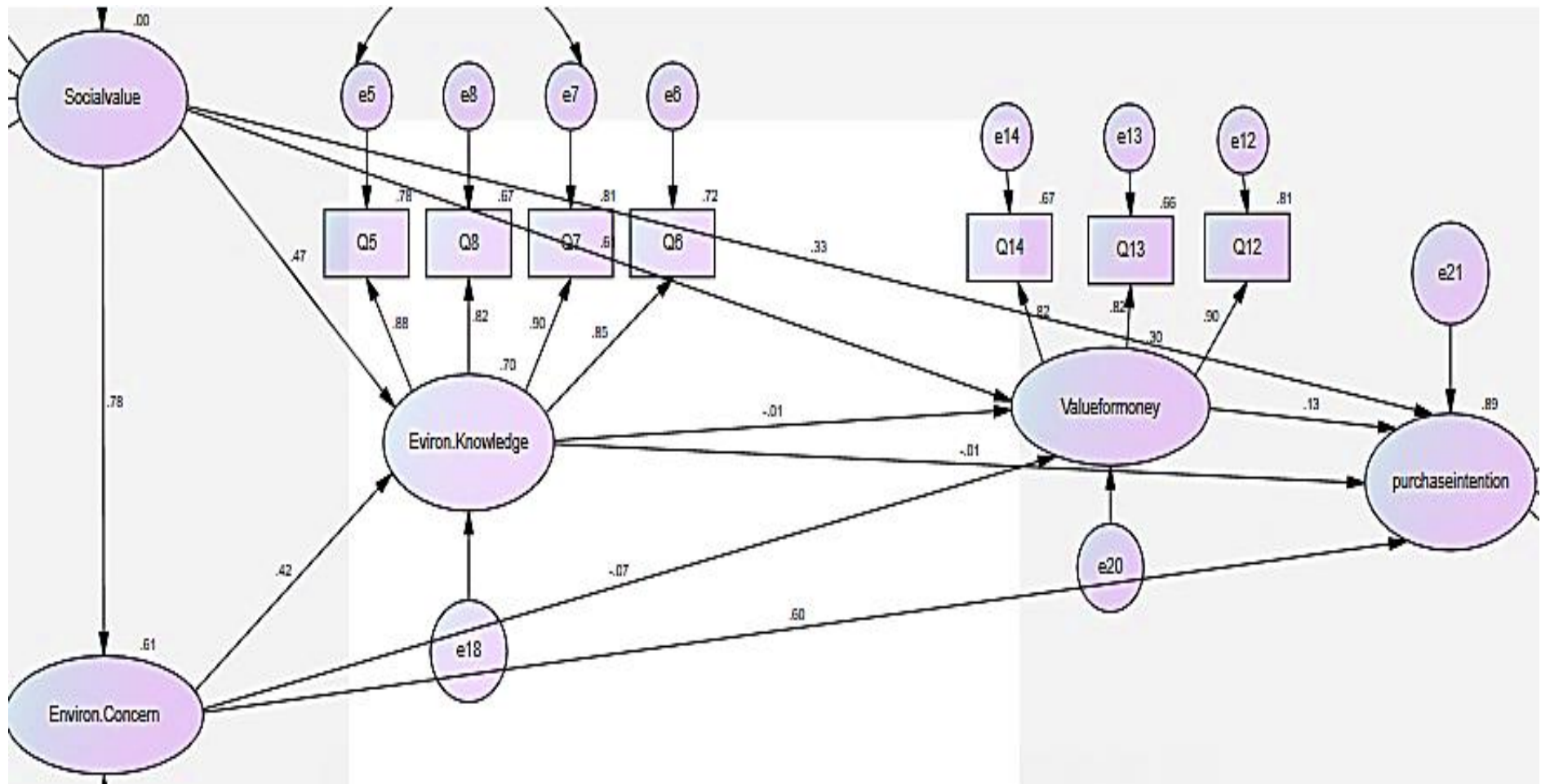


Fig 3. The Structural Model results between the constructs, Source: Own study

## 6. Results and Discussion

### 1<sup>st</sup> Hypotheses: Testing the direct effects of all constructs with purchase intentions

From the table 13 we can see:

- ✓ Social value has positive significant relationship with purchase intention
- ✓ Environmental concern has positive significant relationship with purchase intention
- ✓ Value for money has positive significant relationship with purchase intention
- ✗ But, environmental knowledge has insignificant relationship with purchase intention

### 2<sup>nd</sup> Hypotheses: The second set of hypotheses is about the mediating effects of value for money

Testing the mediating effects of value for money constructs. Whether value for money mediates the social value – purchase intention relationship, environmental concern – purchase intention relationship, and environmental knowledge – purchase intention relationship?

- ✓ Value for money has positive significant relationship with purchase intention
- ✓ Social value has positive significant relationship with value for money
- *Value for money mediates the social value-purchase intention relationship, but partially, because the direct effect from social value to purchase intention is still significant.*
- ✓ Environmental concern has insignificant relationship with value for money
- ✗ Environmental Knowledge has insignificant relationship with value for money
- *Value for money **does not** mediate the - environmental concern – purchase intention relationship, and environmental knowledge – purchase intention relationship.*
- ✓ *Environmental concern only has direct relationship with purchase intention.*
- ✗ *Environmental knowledge do not have any significant relationship with purchase intention, both indirect and direct.*

**3<sup>rd</sup> Hypotheses: The third hypotheses is about the relationship between all the three variables (social value, environmental knowledge and environmental concern)**

Is to understand the relationships between social value, environmental knowledge and environmental concern. The idea here is to test, if social value will lead to the environmental concern and environmental concern will lead to environmental knowledge. If this happens, it means that when we care about our society, we will automatically will be concerned about the environment and if we are concerned about something, we intend to learn more about it and try to gain substantial knowledge to act accordingly. Here in this case, environmental concern can be the mediating variables for the social value – environmental knowledge relationship.

The findings from the interpretation shows

- ✓ Social value has positive significant relationship with environmental concern
- ✓ Social value has positive significant relationship with environmental knowledge
- ✓ Environmental concern has positive significant relationship with environmental knowledge
- *Environmental concern mediates the social value-environmental knowledge relationship, but partially, because the direct effect from social value to environmental knowledge is still significant.*

**All the assumptions and hypotheses are confirmed and tested**

- ✓ Positive significant
- ✗ No relationship
- Mediating effect exists

<b>1<sup>st</sup> Hypotheses: Testing the direct effects of all constructs with purchase intentions</b>	
H1A: Social value is positively related to purchase intention	Supported
H1B: Environmental knowledge is positively related to purchase intention	Not supported
H1C: Environmental concern is positively related to purchase intention	Supported
<b>2<sup>nd</sup> Hypotheses: The second set of hypotheses is about the mediating effects of value for money</b>	
H2A: The value for money mediates the relationship between social value and purchase intention	Supported
H2B: The value for money mediates the relationship between environmental knowledge and purchase intention	Not supported
H2C: The value for money mediates the relationship between the environmental concern and purchase intention	Not supported
<b>3<sup>rd</sup> Hypotheses: The third hypotheses is about the relationship between all the three variables (social value, environmental knowledge and environmental concern)</b>	
H3A : Social value is positively related to environmental knowledge	Supported
H3B : Social value is positively related to environmental concern	Supported
H3C : Environmental concern mediates the relationship between social value and environmental knowledge	Supported

**Table 13: Regression Weights: (Group number 1 - Default model)**

			Estimate	S.E.	C.R.	P	Label
Environ.Concern	<---	Socialvalue	.858	.057	14.980	***	par_18
Eviron.Knowledge	<---	Socialvalue	.456	.066	6.924	***	par_19
Eviron.Knowledge	<---	Environ.Concern	.369	.060	6.179	***	par_26
Valueformoney	<---	Socialvalue	.948	.170	5.562	***	par_20
Valueformoney	<---	Environ.Concern	-.096	.150	-.638	.523	par_24
Valueformoney	<---	Eviron.Knowledge	-.015	.171	-.089	.929	par_25
purchaseintention	<---	Eviron.Knowledge	-.014	.074	-.194	.846	par_15
purchaseintention	<---	Environ.Concern	.691	.070	9.841	***	par_21
purchaseintention	<---	Valueformoney	.105	.028	3.716	***	par_22
purchaseintention	<---	Socialvalue	.416	.079	5.237	***	par_23
Q4	<---	Socialvalue	.943	.049	19.382	***	par_1
Q3	<---	Socialvalue	1.141	.054	21.171	***	par_2
Q2	<---	Socialvalue	.894	.036	24.791	***	par_3
Q1	<---	Socialvalue	1.000				
Q8	<---	Eviron.Knowledge	.829	.044	18.927	***	par_4
Q7	<---	Eviron.Knowledge	.893	.042	21.194	***	par_5
Q6	<---	Eviron.Knowledge	1.000				
Q17	<---	purchaseintention	1.000				
Q16	<---	purchaseintention	.917	.035	25.900	***	par_6
Q15	<---	purchaseintention	.913	.032	28.482	***	par_7
Q13	<---	Valueformoney	.894	.049	18.129	***	par_8
Q12	<---	Valueformoney	1.000				
Q10	<---	Environ.Concern	1.049	.045	23.536	***	par_9
Q9	<---	Environ.Concern	.994	.048	20.700	***	par_10

			Estimate	S.E.	C.R.	P	Label
Q5	<---	Eviron.Knowledge	.946	.046	20.489	***	par_11
Q11	<---	Environ.Concern	1.000				
Q14	<---	Valueformoney	.883	.048	18.261	***	par_12

## 7. Contribution to Science and Practice

The findings have significant implication which may help the marketers to develop suitable strategies for green products and its purchasing behavior. Based on the findings, the marketers are suggested to emphasize on the providing information to the consumers, how they can still consume the products being eco-friendly in nature. The social value (SV) environmental concern (EC), value for money (VM) and environmental Knowledge (EK) were identified as the influencing factors in the broadened or extended framework of the model of green purchase intention among Indian consumers.

So, the need arises to create awareness among consumers by labeling the eco-friendly products with green certification and environmental claims that may positively influence their attitude and intention regarding green products. In a way, the marketers should find ways and alternative that will add the social value quotient to its consumers. With our results interpreted, it is found that if the product is socially accepted within the consumers that will lead to effective purchase behavior. Therefore, marketers should target on good word of mouth and effective communication of environmental related benefits of the products among consumer is crucial for marketers as social value, environmental concern and environmental knowledge and value for money significantly influences the consumer's intention to purchase green products. The findings also suggest that green marketers may want to target the people having higher concern for the environment and having a positive attitude towards making change by purchasing green/eco-friendly products (Lee et al., 2014).

Consistent with TPB, subjective norms and perceived behavioral control emerged as significant positive predictors of purchasing green products. The empirical finding reported that social value exerts a stronger influence on the intention to purchase green products in comparison to the environmental knowledge and

environmental concern. In view of this, the marketers should effectively communicate their messages claiming environmental benefit of products among the society which in turn may strongly influence the individual intention towards green products due to persuasive influence of social group (Chan and Lau, 2002). Also, the results show that Indian consumers are mostly educated and this can further enhance better receptiveness and will has a good scope to generate interests in going green, one of the means is by providing transparent information and effective communication and provide accessible product information portfolio, with all the description that will make customer feel that whatever, they are investing in is really worth it and is adding some value to them. Also, the green/eco-friendly products should be widely distributed at most of the places that may save the time, effort that will increase the opportunity to buy green products. In fact, the Indian government should also take initiative, to promote and run schemes to engage consumers to be more pro-active towards environment friendly ways.

## **8. Conclusion**

This study is one of the preliminary attempts in the Indian context that has developed a framework with robustness for determining consumers' intention to buy green products which is influenced by the determinants factors such as social value, environmental knowledge, environmental concern and value for money related to consumer's purchase intention behavior and to study the mediating variable that impact the flow of the process.

This study suggested nine findings based on the hypotheses laid into three main hypotheses. Firstly, to test the direct effects of all constructs with purchase intentions. Secondly, is about testing the mediating effects of value for money and thirdly, to test the relationship between all the three variables (social value, environmental knowledge and environmental concern). The findings have proved the usefulness of the interpreted model which will help to understand the consumers' perception towards green marketing in India.

The result suggested that consumers' intention to buy green products can be predicted by the determinants factors such as social value, environmental knowledge, environmental concern and value for money which has a significant influence on consumer's purchase intention.

As per the results from our analysis it is found that social value plays a significant role while making a green purchase intention behavior. Also, environmental



concern has a significant influence on consumer's purchase intention which shows Indian consumers are also concerned about the issues related to the environment and considering it while purchasing the green products like their developed counterparts. Further, environmental knowledge is reported to have insignificant direct relationship with purchase intention. However, the environmental knowledge of Indian respondents is found to comparatively descent having a mean value of (5.235) out of 7 which is higher than the mean value of environmental concern (EC) is (5.019) out of 7 which justifies that the Indian consumers have a likely concern for both (EK) and (EC) and have a further scope of understanding and developing interests towards the environment and in future are likely to get more aware and conscious about it. Overall from all the factors studied social value (SV) has the strongest direct implication with purchase intention behavior as per our hypothesized model and value for money also has positive significance with (PI), which means Indian consumers' will be ready to invest in green products, if they see the worth of investing in it. Although the mean value for value for money is (4.21) which is comparatively lower than (EC). However, it is interesting to see that (SV) has a positive significant relationship with both environmental concern (EC) and environmental knowledge (EK). So, it means if (SV) of an individual increase it will result in the increase of both (EK) and (EC). In addition, (SV) also has a positive significant relation with value for money (VM) as well and VM actually mediates the relationship between social value (SV) and (PI). Social value, environmental concern among individuals and attitude towards green products were identified as the main determinants of purchase intention towards green products among young consumers. Overall, it can be inferred that Indian young consumers are concerned about the current environmental problems and have a positive scope of expansion for purchasing green products in near future use.

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1. Saha, A. and Nabareseh, S. Communicating Corporate Social Responsibilities: Using Text Mining for a Comparative Analysis of Banks in India and Ghana. Mediterranean Journal of Social Sciences. 2015. vol. 6, no. 3 S1, p. 11.
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# APPENDICES

## APPENDIX 1: Questionnaire for Customers

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### Questionnaire for consumers

Green products also termed as eco friendly products are energy efficient, durable and often have low maintenance requirements. Free of chemicals, toxic compounds and don't produce toxic by-products. Often made of recycled materials or contents or from organic, renewable and sustainable sources.

---

Please specify the state you belong in India ?

Short answer text  
.....

Please indicate your age bracket

- 20-34
- 35-49
- Over 50

Please specify your gender

- Male
- Female

## Please specify your level of education

- High school education
- Bachelor's degree
- Master's degree
- Doctoral degree
- Other Specify
- Other...

## Please specify the range of your annual income

- Less than 300,000 INR - Less than 3 Lakh
- From 300,000 - 500,000 INR - 3 Lakh to 5 Lakh
- From 500,001 - 700,000 INR - More than 5 Lakh to 7 Lakh
- From 700,001 - 900,000 INR - More than 7 Lakh to 9 Lakh
- From 900,001 - 1,100,000 - More than 9 lakh to 11 Lakh
- Above 11 Lakh

How do you rate environmentally friendly products as in cosmetics(made from natural ingredients ), food and beverage (with less or no added chemicals ), natural oils, electronic appliances that reduces carbon footprint : like air conditioners etc ? \*

	1	2	3	4	5	6	7	
Extremely bad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely good

1. Purchasing of eco-friendly products will help me gain social approval

	1	2	3	4	5	6	7	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

2. I would buy eco-friendly products on peer's suggestions or preference to buy them

	1	2	3	4	5	6	7	
Extremely Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree



3. Purchasing environmentally friendly or green labelled products will make a positive impression on peer groups

	1	2	3	4	5	6	7	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

⋮

4. Consumption of eco-friendly products will improve the way I am perceived

	1	2	3	4	5	6	7	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

5. I would prefer to gain substantial information on eco-friendly products before purchase

	1	2	3	4	5	6	7	
Extremely disinterested	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely interested

6. I know to select products and packages that reduce the amount of waste dumping

	1	2	3	4	5	6	7	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

7. I understand various phrases and symbols related to environment on product packages

	1	2	3	4	5	6	7	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

8. Features rating green labels like totally organic or eco-labels in a product gives me assurance and satisfaction because of the environmental knowledge I have

	1	2	3	4	5	6	7	
Extremely Irrelevant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely relevant

9. I would avoid buying a product if it had potentially harmful environment effects

	1	2	3	4	5	6	7	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

10. I am concerned about wasting the resources of our planet

	1	2	3	4	5	6	7	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

11. I consider the potential environmental impact of my actions when making many of my consumption decisions

	1	2	3	4	5	6	7	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

12. Environment friendly products are considered good products for the price in India

	1	2	3	4	5	6	7	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

13. Green products or eco-friendly products have an expectable standard quality

	1	2	3	4	5	6	7	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

14. Environmentally friendly products are economical for the attributes they offer

	1	2	3	4	5	6	7	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

15. To me, it deserves to consume environment friendly products despite their premium pricing

Like for example, you prefer to invest little more on buying power saving Air conditioners which complies with the environment standards / invest in high quality products which are less harmful to your health

	1	2	3	4	5	6	7	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

16. I am willing to buy environment friendly products at a higher price for their environmental benefits

	1	2	3	4	5	6	7	
Not interested at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally interested

17. Given a choice between two substitute products, I intend to choose the one having less environmentally hazardous substances in future

	1	2	3	4	5	6	7	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

Ing. Anusua Saha, Ph.D.

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Consumerism In India**

**Ráamec pro studium postojů indických spotřebitelů směrem k udržitelné  
spotřebě v Indii**

Doctoral Thesis Summary

Published by: Tomas Bata University in Zlín,  
nám. T. G. Masaryka 5555, 760 01 Zlín.

Number of copies: issued in electronic version

1<sup>st</sup> edition

Typesetting by: Ing. Anusua Saha

This publication underwent no proof reading or editorial review.

Publication year: 2017

ISBN 978-80-7454-716-4

