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Causality analysis of media influence on environmental attitude, intention and behaviors leading to green purchasing

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**Causality analysis of media influence on environmental attitude, intention and behaviors leading to green purchasing**

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**Abstract**

This research provides a comprehensive delineation of the process that leads to the formation of green behavior by including the role played by media and attitude towards environment-friendly packaging, along with ecological concern and perceived consumer effectiveness. The study offers a parsimonious framework that measures the major antecedents of environmental attitude divided into inward and outward orientation. Moreover, it also measures the effects of these environmental attitudes and attitude towards green packaging on green purchase intention. A total of 308 usable questionnaires were obtained from Indian consumers and data analysis was conducted using confirmatory factor analysis and structural equation modeling. The results show that inward environmental attitude and attitude towards green packaging play a pivotal role in shaping green purchase intention. Surprisingly, outward environmental attitude was found to be non-significant. Findings offer implications for marketing managers and public policy makers, as well as reveal fruitful avenues for further research.

**Keywords:** Green packaging, media influence, ecological concern, green purchase behavior, structural equation modeling, perceived consumer effectiveness

## **Causality analysis of media influence on environmental attitude, intention and behaviors leading to green purchasing**

### **Abstract**

The detrimental impact on environment can be reduced by consumers' green consumption. This research provides a comprehensive delineation of the process that leads to the formation of green behavior by including the role played by media and attitude towards environment-friendly packaging, along with ecological concern and perceived consumer effectiveness. The study offers a parsimonious framework that measures the major antecedents of environmental attitude divided into inward and outward orientation. Moreover, it also measures the effects of these environmental attitudes and attitude towards green packaging on green purchase intention. A total of 308 usable questionnaires were obtained from Indian consumers and data analysis was conducted using confirmatory factor analysis and structural equation modeling. The results show that inward environmental attitude and attitude towards green packaging play a pivotal role in shaping green purchase intention. Surprisingly, outward environmental attitude was found to be non-significant. Findings offer implications for marketing managers and public policy makers, as well as reveal fruitful avenues for further research.

**Keywords:** Green packaging, media influence, ecological concern, green purchase behavior, structural equation modeling, perceived consumer effectiveness

### **1. Introduction**

An increasing focus on understanding attitudes, beliefs and behavior of consumers in relation to ecological issues and products that are least harmful to environment helps reduce waxing environmental problems (Roberts and Bacon, 1997) and at the same time results in creating new

environment-friendly product offerings to increase market share in otherwise highly cluttered and competitive markets (Rundle-Thiele et al., 2008; Zhou, 2018). In the past, it has been suggested that with consumers' heightened ecological concern, not only in developed (Obermiller, 1995; Barber et al., 2009) but also in developing economies (Lee et al., 2012; Singh and Gupta, 2013; Chen and Tung, 2014), positive inclination towards environment-sensitive products and green purchase behavior has increased significantly (Kilbourne and Pickett, 2008).

As identified by Leonidou et al. (2010) and Trivedi et al. (2015), research on environment-conscious consumer behavior has increased exponentially in recent past. Finding a link between environment-friendly consumer attitude and green purchase behavior is one of the emerging streams of research under the broader domain of green marketing. Under this research stream, researchers in the past measured environment-friendly consumer attitude in the context of recycling, energy conservation, environmental activism and other environment-friendly activities (McCarty and Shrum, 2001; Laroche et al., 2001).

From these studies, it has been observed that there exists a strong positive linkage between environment-friendly consumer attitude and active participation in various activities and programs that support environmental preservation. Some studies also reported that active involvement in such activities results in some inconvenience to consumers, either in terms of increased cost or physical efforts (Shabecoff, 1993). Still, an increased momentum and enthusiasm have been observed among green consumers in both developed as well as developing countries. On similar lines, a few researchers also found a significant relationship between green attitude and green consumer purchase intention (Mostafa, 2007).

However, Diamantopoulos et al. (2003) and Leonidou et al. (2010) argue that there is inadequate understanding about consumers' eco-friendly attitude-intention-behavior link. Literature has so far treated the measurement of environmental attitude and behavior in a composite manner (Sarigöllü, 2009). Unlike previous researchers, Leonidou et al. (2010) proposed to divide environmental attitude into inward and outward factors, where inward environmental attitude refers to the attitude of an individual consumer towards environmental issues, while outward environmental attitude refers to perceived collective action required from various facets of society to protect the environment. Leonidou et al. (2010) argued that it is necessary to understand the role played by these two factors separately in resultant the intention-behavior link. However, there are no subsequent studies conducted that specifically explore this attitude-intention-behavior link empirically in a parsimonious framework.

Although a few factors like perceived consumer effectiveness (Kang et al., 2013) and ecological concern (Roberts and Bacon, 1997; Chen and Tung, 2014) were found to have an effect upon green purchase, influencing factors were typically studied in piecemeal fashion, and very little is known about their inter-relationship and the mediating role played by environmental attitude. Considering this, Biswas and Roy (2015) called for new research efforts to examine the progression of consumers' attitudes, intentions, and behavior towards green products in a more integrated way.

Additionally, the research on choice of product packaging and its impact on household waste and environmental consequences gained momentum in the last decade (e.g., Roper and Parker, 2006). Bech-Larsen (1996) suggested that there exists a small group of consumers with a strong

need for green packaging. Considering this, Rokka and Uutisalo (2008) recommended adding attitude towards product packaging as one of the important determinants of consumer choice modeling. However, a detailed literature review suggests that although packaging constitutes a very important determinant in consumers' purchase decisions, consumers' attitude towards environment-friendly packaging has not been given its due importance as a major factor influencing green purchase behavior in consumer choice modeling. Although a few studies examined the effect of environment-friendly packaging as one of the product attributes affecting consumers' general attitude towards products (e.g. Thøgersen, 1999; Barber, 2010), the effect of the same on green purchase behavior is still to be examined.

In a similar vein, it is believed that media can significantly influence ecological concern of consumers (Rios et al., 2006; Paco and Raposo, 2009). Media plays a significant role by delivering relevant information, thereby strengthening individual and collective ecological concern and shaping long-term environmental attitude (Paco and Raposo, 2009). However, Carrete et al. (2012) questioned the role of media in influencing ecological concern and argued that due to consumer skepticism, media may not play a significant role in shaping ecological concern or attitude. However, the empirical links measuring influence of media on ecological concern and environmental attitude of consumers are yet to be established. This study attempts to fill all of these voids in green marketing literature by understanding the antecedents of green consumer attitude and its relationship with green purchase behavior in a set of Indian consumers.

The study has five major objectives: a) to empirically understand the effect of perceived consumer effectiveness, media influence and ecological concern on environmental attitude, b) to



measure the effect of ecological concern on attitude towards environmental-friendly packaging, c) to explore the differential effect of inward and outward environmental attitude on green purchase intention, d) to measure the influence of attitude towards environment-friendly packaging on consumers' green purchase intention, e) to investigate the link between green purchase intention and green purchase behavior. Overall, this study makes a pioneering attempt to empirically understand consumers' eco-friendly attitude-intention-behavior link in a more integrated way by considering the role of media and green packaging holistically.

The remainder of the paper is organized into the following parts: In the second part, literature on green marketing in Asian context, environmental attitude, perceived consumer effectiveness, ecological concern, media and attitude towards environment-friendly packaging is reviewed and linked to green purchase intention and behavior. The next section provides research methodology and data analysis. Finally, findings of the study and their practical implications are provided along with limitations of this research and direction for future research.

## **2. Literature Review**

### **2.1 Environmental Attitude – Inward and outward**

To understand behavior of ecologically conscious consumers, environmental attitude has been identified as one of the primary and most important antecedent variable that determines subsequent purchase intention and behavioral action of green consumer (Chen and Tung, 2014; Perrea et al., 2014; Prete et al., 2017). Milfont (2007) described environmental attitude in terms of 'psychological tendency' that results in the perceptions or beliefs regarding environment. Bohlen et al. (1993) observed that conceptualizing and measuring consumers' environmental

attitude and behavior is one of the important issues in green marketing literature. Researchers explored the links between environmental attitudes and behavioral intentions ranging from specific environmental preservation acts like recycling (McCarthy & Shrum, 2001) to consumption behavior actions like willingness to pay a higher price for environment-friendly products (Laroche et al., 2001). Although such a pro-environmental attitude results in either some form of physical or behavioral inconveniences or increased cost (Shabecoff, 1993), cognitive consistency theory (Festinger, 1957) supports such an attitude because consumers with positive environmental attitude depict increased motivation to take pro-environmental actions (Leonidou et al., 2010).

Such pro-environmental action is embedded in behavior to such a degree that consumers internalize preservation of environmental resources and its importance as the primary dominant force for long-term human-nature relationship and wellbeing (Shabecoff, 1993). For example, an individual with negative feelings about wasting food may not only regulate his/her cooking and food consumption habits, but may expect government to take corrective actions with sound policy initiatives. He/she may also expect unified response from multiple stakeholders since it is difficult for an individual to enforce sustained positive food consumption and food-resource preservation behavior at a societal level (Fransson and Garling, 1999).

Leonidou et al. (2010) attempted to operationalize how individuals evaluate various pro-environmental actions by proposing two constructs, viz. 'Inward environmental attitude' and 'Outward environmental attitude'. In this, inward environmental attitude is referred to as, "attitudes referring to the abuse of the environment by individual consumers (p. 1322)" wherein

the role played by an individual towards environmental preservation is accorded utmost importance and therefore, the perceived need for individual efforts to protect the environment is considered a dominant force (Leonidou et al., 2010).

On the other hand, outward environmental attitude is defined as “attitudes about the perceived need for social, political and legal changes to protect the environment” (Leonidou et al., 2010, p. 1322). Here, instead of considering an individual as the focal point in long-term environmental resource preservation, all the key stakeholders like government, not-for-profit organizations and society at large are expected to participate actively by shaping policy, initiating foundational changes, and taking corrective action for balancing human-nature relationship (Van Liere and Dunlap, 1980; Leonidou et al., 2010)

## **2.2 Ecological concern**

Ecological concern has been commonly defined as the awareness about the environmental problems and the willingness of a person to be a part of the solution (Dunlap & Jones, 2002). Zimmer et al. (1994) defined ecological concern as “a general concept that can refer to feelings about many different green issues (p. 234)”. Ecological concern has been quite often conceptualized as unidimensional construct that ranges from low to high concern towards environment at large (Milfont and Duckitt, 2004). On similar lines, Van Liere and Dunlap (1980) observed that ecological concern may be a fairly broad concept, but it is best represented by concern about pollution and natural resources.

Fransson and Garling (1999) specifically conceptualized ecological concern from value orientations perspective such as self-interest, anthropocentric altruism (referred to as belief that degraded environment poses a threat to well-being of people) and eco-centricity. In one of the earlier studies, Maloney et al. (1975) discovered that those consumers who depict higher ecological concern are more ready than others to change their behavior and explore green product alternatives. Subsequent to their research, various other studies have found positive associations between ecological concern and environment-friendly behavior (Straughan and Roberts, 1999; Laroche et al., 2001; Kim and Choi, 2005; Paco and Raposo, 2009; Kim and Han, 2010; Suki, 2016).

Crosby et al. (1981) argued that ecological concern acts as a precursor to positive attitude towards environmental preservation. Indeed, an individual's ecological concern stems from his or her fundamental belief or value (Schultz, 2000) and influences subsequent attitude, finally leading towards specific behavioral action ranging from recycling to the purchase of environment-friendly product. As identified by Kim and Choi (2005), this relationship depicts a well-established hierarchical model of value-attitude-behavior that has been studied in various contexts (McCarty and Shrum, 1991) and holds true for understanding green purchase behavior.

Alwitt and Pitts (1996) found that ecological concern significantly and positively influences attitude towards environment-friendly products. De Groot and Steg (2007) show that people with higher ecological concern are more likely to depict a positive attitude towards using eco-friendly parking facilities. Tang and Lu (2013) also found a positive link between ecological concern and consumer attitude while studying Chinese consumers. Paco and Raposo (2009) also argued that

attitude of consumers towards eco-friendly behavior turns positive as environmental consciousness increases, and that consumers are more likely to behave in an environment-friendly manner. However, none of the previous studies investigated the link between ecological concern and two separate aspects of consumer attitude, viz. inward and outward environmental attitude. Considering this, it is hypothesized that:

*H<sub>1</sub>: Ecological concern positively influences inward environmental attitude.*

*H<sub>2</sub>: Ecological concern positively influences outward environmental attitude.*

In a few of the studies, it has been found that there is a significant difference between consumers with high and low ecological concern with respect to information receptivity about sustainable products (Bamberg, 2003; van Birgelen et al., 2009). Magnier and Schoormans (2015) reported that people with low ecological concern respond to packaging claims differently from people with high ecological concern. Schwepker and Cornwell (1991) found a strong link between ecological concern and attitude towards environment-friendly packaging in America. Barber (2010) showed that consumers purchasing green wines are highly concerned about environment. Such consumers have a more favorable attitude towards environment-friendly packaging, which further stimulates green behavior. However, none of the previous studies have focused on this relationship in the context of emerging economies. Therefore, it has been hypothesized that:

*H<sub>3</sub>: Ecological concern positively influences attitude towards environment-friendly packaging.*

### **2.3 Perceived Consumer Effectiveness**

Ecological concern does not always translate into consumers' environment-friendly behavior (Vermeir and Verbeke, 2008). It has often been found that although consumers believe that

environmental preservation is important, their actual behavior does not reflect their belief or concern (Butler and Francis, 1997). This discrepancy between ecological concern and actual environment-friendly behavior has been reported in numerous studies (e.g. Domina and Koch, 1998; Ritch and Schröder, 2012).

Perceived consumer effectiveness (PCE) has been found as one of the important determinant to fill this gap between ecological concern and environment-friendly behavior (Roberts, 1996). PCE has been defined by Berger and Corbin (1992) as “the evaluation of self in context to the issue (p.80)”. In environmental behavior context, Ellen et al. (1991) defined PCE as the consumers’ perception about the extent to which their actions can make a difference in solving environmental problems. Ellen et al. (1991) with empirical evidence showed that PCE is distinct from environment concern or attitude.

In the past, it has been proven that perceived consumer effectiveness is also situation- or issue-specific (Vicente-Molina et al. 2018). PCE has been studied by various researchers as an important determinant of consumer’s environment-friendly behavior (Ellen et al., 1991; Roberts, 1996; Awad, 2011; Zhao et al., 2018). While a few researchers tried to establish direct relationship between perceived consumer effectiveness and environment-friendly buying behavior (e.g. Taufique and Vaithianathan, 2018), most of the studies found that the effect of perceived consumer effectiveness on buying behavior is mediated by attitude (e.g. Berger and Corbin, 1992; Gupta and Ogden, 2006; Cho et al., 2013; Jang et al., 2015).

Vermeir and Verbeke (2008) found that among Belgian consumers, a higher level of perceived consumer effectiveness results in a positive attitude, and translated into buying of environment-friendly products. Kim and Choi (2005) conducted a study of American consumers and found that PCE indirectly influences purchase behavior through environment-friendly attitude. However, due to lack of empirical evidence about consumers in emerging economies, it has been hypothesized that:

*H<sub>4</sub>: Perceived consumer effectiveness positively influences inward consumer attitude.*

*H<sub>5</sub>: Perceived consumer effectiveness positively influences outward consumer attitude.*

## **2.4 Media Influence**

Agenda-setting theory (McCombs and Shaw, 1972) proposes that media play a very critical role in influencing people's perception and in directing their thoughts towards a specific agenda or person. McCombs et al. (1997) expanded the agenda-setting theory by proposing that media do not only influence people about what to think (first-level agenda setting), but also direct their thought about specific people, object or issue (second-level agenda setting). First-level agenda setting is used in green marketing, when media emphasize global warming as a prominent environmental issue facing mankind, and second-level agenda setting is used when media highlight excessive use of fossil fuels leading to the problem of global warming. Various studies (e.g., Curtin and Rhodenbaugh, 2011) have examined the agenda-setting effects of media on public agenda. Fernando et al. (2014) used agenda-setting theory to understand the use of online media to set the agenda for consumers' ecological concern in green-washed advertisement claims.

Media often play a critical role in delivering important information to consumers so as to influence their collective ecological concern (Rios et al., 2006; Yu et al., 2017). Zucker (1978) believed that environmental issues are more sensitive to media coverage compared to other social issues. In one study conducted by Environmental Leader (2009), it was found that almost eighty percent of marketers planned to increase their marketing budget on green marketing in order to tap more environment-conscious audience. Thus, based upon past media research and relationship proposed by earlier researchers like H'mida (2006) that are yet to be empirically tested, it has been hypothesized that:

*H<sub>6</sub>: Media coverage of environmental issues positively influences ecological concern.*

Moreover, it has also been proposed in the past that media can directly influence consumers' environmental attitude and behavior related to various issues like energy, pollution levels, and consequences of ecological degradation (Butler, 1990; Muralidhan et al., 2016). Holbert et al. (2003) found that the use of news media positively influence pro-environmental behavior and attitudes. However, in one of the studies, Qader and Zainuddin (2011) found that media exposure does not significantly influence environmental attitude among Malaysian respondents. Importantly, consumption-linked coverage of environmental attitudes in media may change the perception of consumers about the degree of their control in protecting the quality of environment. Media can change an individual consumer's attitude about his/her environment-unfriendly excess consumption behavior with immediate effect (Mikami et al., 1995). Therefore, it is postulated that:

*H<sub>7</sub>: Media coverage of environmental issues positively influences consumers' inward environmental attitude.*



Many times, as observed by Mikami et al. (1995), media coverage of the environmental issues brings gradual and cumulative long-term effects among various stakeholders and society at large by creating awareness and acceptance of the role played by government and other legislative bodies. Media over-emphasis on the generic nature of environmental issues may also lead consumers to believe that political and legal systems are inefficient to handle environmental issues promptly and competently. However, none of the researchers in the past investigated the influence of media coverage of environmental issues on outward environmental attitude. Therefore, we hypothesize that:

*H8: Media coverage of environmental issues positively influences consumers' outward environmental attitude.*

## **2.5 Environmental Attitude and Purchase Intention**

Many studies have shown that consumers with inward positive environmental attitude are more likely to buy environment-friendly products and may work as strong brand advocates for environment-friendly products in their social circles (Homer and Kahle, 1988; Balderjahn, 1988; Hume, 1991; Alwitt and Pitts, 1996; Roberts and Bacon, 1997; Kilbourne and Pickett, 2008; Paladino and Ng, 2013; Varela-Candamio et al., 2018). While comparing American consumers with their Chinese counterparts, Chan and Lau (2001), found that Chinese consumers showed a significant relationship between attitude and behavioral intention to purchase environment-friendly products. In one other study on Chinese consumers, Chan (2001) also found a positive relationship between consumers' attitude towards environment and their green purchase intention.

Jain and Kaur (2004) found that positive ecological concern and attitude have significant effect on willingness to pay for environment-friendly products. In another study in India, Yadav and Patahk (2016) used theory of planned behavior to understand green product purchase behavior taking perceived value as a focal construct. Verma and Chandra (2018) found Indian consumers' environmental attitude to be most important determinant of green hotel visit intention. Singh and Verma (2017) reported that Indian consumers' favorable environmental attitude has significantly positive effect on purchase intention for organic food product. However, there is a dearth of literature on the differential effect of inward and outward environmental attitude on purchase intention for environment-friendly products. Considering the positive link between composite environmental attitude and purchase intention; and the lack of empirical evidence separating two types of environmental attitudes, we posit that (Figure 1):

*H<sub>9</sub>: Consumers' inward environmental attitude results into increased intention to purchase environment-friendly products.*

Consumers may go over and above private action and participate proactively in various social, political, legal, and other issues to contribute towards environmental protection (Fransson and Garling, 1999). This outward environmental attitude directly and significantly affects public policy-making (Stern, 2000). Kassarian (1971) found attitude toward air pollution as the most important determinant of preference for less harmful gasoline to the environment. Some scholars who studied the effect of ecological attitudes and intentions on actual behavior of Asian consumers found that there is a positive association between the two (Chan, 2001; Mostafa, 2007; Singh and Gupta, 2013). However, the specific relationship between outward

environmental attitude and purchase intention still remains to be empirically investigated and therefore, it has been hypothesized that:

*H<sub>10</sub>: Consumers' outward environmental attitude results in increased intention to purchase environment-friendly products.*

## **2.6 Attitude towards Environment-friendly Packaging**

To date, packaging research has been primarily oriented towards understanding communicative functions of packaging (e.g., labeling, color, size, etc.) on consumers' decision-making process. However, very little attention has been paid to environment-friendly packaging as an alternative with the required functional characteristics that have the least harmful effect on environment (e.g., Bone and Corey, 2000; Rokka and Uutisalo, 2008; Steeins et al., 2017). Delia (2010) suggested that the degree of environmental pollution due to packaging could be used as an indicator of environment-friendliness of packaging.

Companies are increasingly using sustainable packaging in response to consumers' increasing concern about environmental issues (Olsen et al., 2014). Recently, many companies have started using small recyclable cartons for product packaging and there is an increasing trend of abandoning the use of plastic bottles or bags for product packaging (Rokka and Uutisalo, 2008). In a few countries, governments have since long banned certain types of plastic packaging or imposed higher taxes on packaging made with contents harmful to the environment (Kovacs, 1988). With this, increased focus on post-use management of product packaging and on growing amount of household waste is considered one very important reason behind the increased attention to green packaging (Bone and Corey, 2000).

In western countries, it has been observed that there is a small but strong niche of consumers that prefer to purchase goods with biodegradable packaging (Kirkpatrick, 1990; Bech-Larsen, 1996; Minton and Rose, 1997; Barber, 2010) and therefore more products are entering market with environment-friendly packaging (Magnier and Schoormans, 2015). Indeed, more than 90 percent of European citizens insist that companies should proactively engage in recycling and reduce the use of plastic in product packaging (Eurobarometer, 2014). Nittala (2014) found that among educated Indian consumers, opinions about the use of plastic carry bags and about banning the same can be used to segment those who are willing to purchase green products and those who are unwilling.

Laroche et al. (2001) found that consumers with higher ecological concern pay attention to packaging and make sure recycled material is used for packaging. But at the same time, it is found that since consumers are unable to differentiate between more environment-friendly and less environment-friendly packaging alternatives, the use of environment-friendly packaging is lower (Bech-Larsen, 1996). Prakash and Pathak (2017) suggested that attitude towards product packaging is one important area that requires attention so as to build consumer confidence in buying environment-friendly products. Suki (2014) also suggested the use of green product packaging with self-declarative claims to help consumer in choosing products with green alternative. Rokka and Uutisalo (2008) suggested adding green packaging as an important element in consumer-choice modeling. Considering this, it has been hypothesized that:

*H<sub>11</sub>: Attitude towards environment-friendly packaging exerts a positive influence on consumers' purchase intention of environment-friendly products.*

## 2.7 Green Purchase Behavior

In line with Kilbourne and Pickett (2008), Leonidou et al. (2010) defined green purchase behavior as “...preference and use of products that are friendly to the environment and/or have been produced using ecological processes and material (p. 1327)”. Although there is an increasing awareness about environmental preservation and willingness to act in manners that result into environmental preservation, it has been observed that there exists an ‘intention-behavior’ or ‘value-action’ gap. More than 30 percent of consumers who have shown higher ecological concern do not depict green purchasing behavior (Young et al., 2010). A sizable number of scholars studied this gap between willingness and actual behavior of consumers towards environment-friendly behavior from a variety of perspectives (Intel, 1995; Crane, 2000). One of the reasons behind this has been perceived consumer risk in buying green products in terms of quality, performance or environmental consequences of their decision (Follows and Jobber, 2000). Other variables like culture, finance, lifestyle, personality may also influence the final link between intention and action of buying environment-friendly products (Akehurst et al., 2012; Liu et al., 2016).

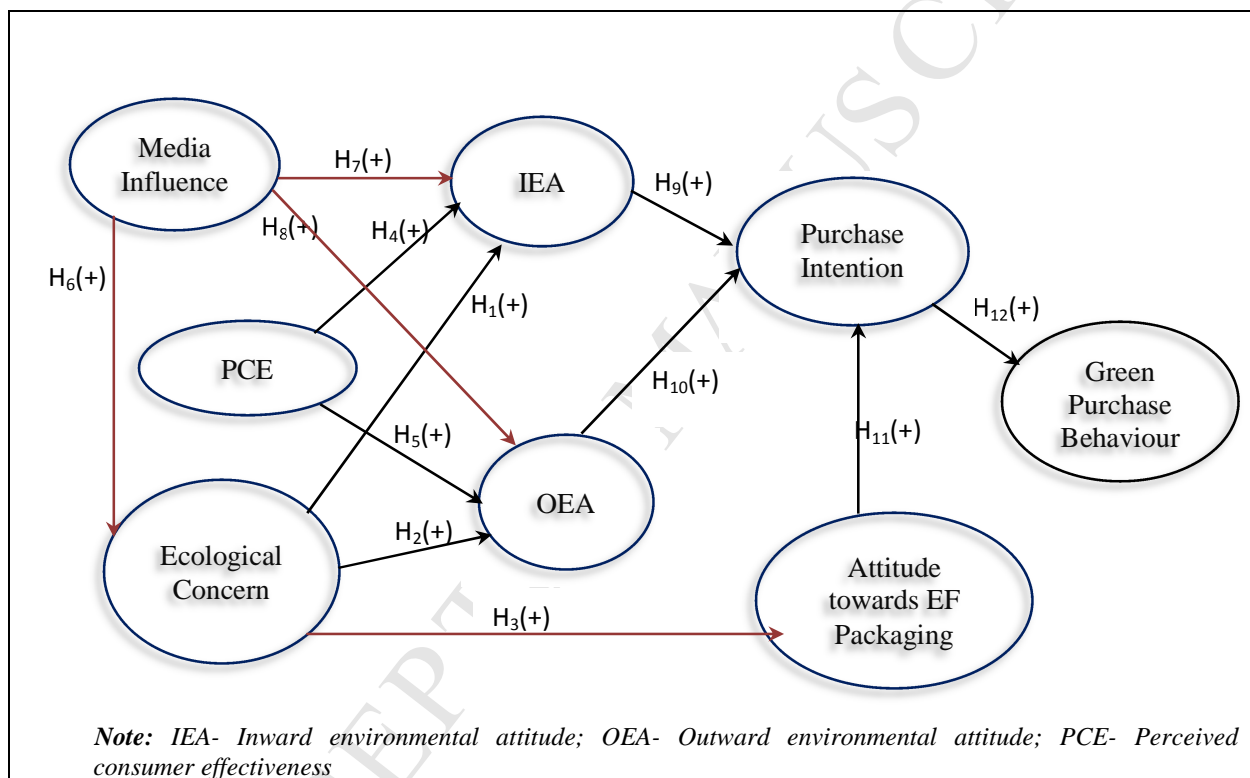
The investigated relationship between green purchase intention and green purchase behavior in western countries has been saddled with mixed results. Although there are some studies that indicated a strong relationship between the two (Chan and Yam, 1995; Chan and Lau, 2000; Chan, 2001; Bamberg, 2003; Bamberg and Moser, 2007; Liu et al., 2010; Rezai et al., 2013), a few other researchers found the link to be either weak or non-existent (Wong et al., 1996; Crane, 2000; Akehurst et al., 2012). Considering this, it has been hypothesized that:

*H<sub>12</sub>: Green purchase intention positively influences green purchase behavior.*

## 3. Proposed Research Model

The research framework used in this study is shown in Figure 1. The focus of the study was the role of environmental attitude comprised of inward and outward orientation on green purchase behavior. The effect of media and green packaging were also a novel aspect of this study in green marketing domain.

**Figure 1: Research framework**



## 4. Methods

### 4.1 Sample

As green concepts investigated in this study are very difficult to understand and comprehend for Minors (Chan, 2001), sample ideally consists adults as they hold greater ability to compare and evaluate available choices and make a selection. Apart, green context is easily understood by

educated people (Hedlund, 2011; Paul et al. 2016). Therefore, quota sample of people aging more than 18 years with reasonably educated composed of ideal sample to target. The use of non-probability sampling method was obvious as most internet based survey does not have available exhaustive sampling frame (Morris et al. 2003).

Furthermore, the research study was conducted in India since it has a wider geographical area. Reaching the maximum number of respondents in a cost-effective manner was equally important; therefore online survey through web was chosen (Zikmund, 1997). Internet samples were obtained by creating a sampling frame of e-mail addresses on ad-hoc basis (Zikmund et al. 2010). Almost, 2600 e-mails appending link of survey was sent to respondents resulting into collection of 369 samples. Of which, 61 respondents were aged less than 18 years and thus dropped. Finally, 308 usable responses were the resultant of this web survey approach which was much higher than the recommended value of at least 200 responses (Hair et al., 1998; Kelloway, 1998) for structural equation modeling.

Sample background information was checked to see how accurately the sample represents the population. The sample is evenly distributed gender-wise. Of 308 respondents, 60.1% of respondents were female (n=185). Age-wise, 42.2% of the respondents were 17-31 years old (n=130), followed by 26.3% in the age group of 32-40 years (n=81). Education-wise, 43% of respondents did post-graduation (n=132), and 41.2% were graduates (n=127). 49% of respondents (n=151) had income levels higher than Rs. 50,000 per month. Thus the sample is dominated by young, female, educated, and higher income respondents.

## 4.2 Measures

We have used well-established scale from past studies to measure consumers' eco-friendly attitude-intention-behavior link as mentioned in Figure 1. All the measurement constructs used in the present study are frequently used in green marketing literature and were validated in multiple studies to measure consumer response in the context of green consumption behavior. A 4-item *inward environmental attitude scale* (IEA) and a 4-item *outward environmental attitude scale* (OEA) were adopted from Leonidou et al. (2010). One item in OEA scale was dropped in further analysis as it was suggested in face validity test that there was poor contextual fit. A 4-item *perceived consumer effectiveness scale* (PCE) was adopted from Straughan and Roberts (1999) and Kim (2011). A 5-item *ecological concern scale* (EC) was taken from Johnson et al. (2004) study. Attitude towards environment-friendly (EF) packaging scale consisting of 4 items was adopted from Lee (2009) and modified. Two statements were added to capture consumers' packaging orientations such as reusing and refilling (Einsmann, 1992; Johri and Sahasakmontri, 1998; Kim and Damhorst, 1999).

A 3-item *media influence* scale was adopted from Rahbar and Wahid (2011) and the roles of newspapers and magazines were added to capture the concept. A 3-item *purchase intention* scale was adopted from Taylor and Todd (1995) and Mostafa (2007), and modified. Finally, *green purchase behavior* was measured with four items, which were adopted from Kilbourne and Pickett (2007) and Leonidou et al. (2010). All the scale items used in this study were measured on a seven-point Likert-type scale ranging from “strongly disagree (1)” to “strongly agree (7)” (appendix I).



### 4.3 Reliability of Scale

Cronbach's Alpha ( $\alpha$ ) was computed in SPSS 20.0 for testing reliability of scales of each latent variable. Alpha value of 0.6 was recommended for survey based research threshold (Hair et al., 2009). Table 1 reveals that all the alpha values ranging from 0.87 to 0.97 were higher than the cut-offs. These statistics signal scales' internal consistency.

**Table 1: Reliabilities statistics**

Scale	No. of items	Cronbach's Alpha ( $\alpha$ )	Standardized loadings ( $\lambda$ )*	AVE	Composite Reliability
Perceived Consumer Effectiveness (PCE)	PCE1	0.87	0.789	0.67	0.89
	PCE2		0.900		
	PCE3		0.623		
	PCE4		0.919		
Ecological concern (EC)	EC1	0.97	0.868	0.85	0.96
	EC2		0.966		
	EC3		0.933		
	EC4		0.889		
	EC5		0.947		
Inward environmental attitude (IEA)	IEA1	0.93	0.939	0.74	0.92
	IEA2		0.887		
	IEA3		0.800		
	IEA4		0.805		
Outward environmental attitude (OEA)	OEA1	0.96	0.946	0.87	0.95
	OEA2		0.911		
	OEA3		0.940		
Attitude towards EF packaging (PKG)	PKG1	0.88	0.835	0.69	0.90
	PKG2		0.882		
	PKG3		0.647		
	PKG4		0.930		
Purchase intention (PI)	PI1	0.94	0.917	0.80	0.92
	PI2		0.922		
	PI3		0.851		
Green purchase behaviour (GPB)	GPB1	0.94	0.942	0.77	0.93
	GPB2		0.834		
	GPB3		0.903		
	GPB4		0.839		
Media influence (MI)	MI1	0.96	0.898	0.89	0.96
	MI2		0.952		

	MI3		0.979		
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Note: \*all factor loadings are significant at  $p < 0.05$  level

#### 4.4 Data analysis

Structural Equation Modeling (SEM) was performed in two stages through Analysis of Moment Structure (AMOS) 19.0 version (Anderson and Gerbing, 1988; Arbuckle, 2006). Confirmatory factor analysis (CFA) was carried out in stage one to examine the adequacy and quality of measurement through establishment of reliability, convergent and discriminant validity, i.e., measurement model analysis. Stage two tested the causal relationships among latent variables, i.e., structural model analysis. Maximum Likelihood Estimation (MLE) was used at both stages (Byrne, 2001). Multiple indicators were used to assess the goodness of fit such as  $\chi^2$  (*Chi – square*)/ $df < 3$ , CFI (comparative fit index)  $\geq 0.9$ , TLI (Tucker-Lewis index)  $\geq 0.9$ , PNFI (parsimonious normed fit index)  $\geq 0.5$ , and RMSEA (root mean square error of approximation)  $\leq 0.08$  (Byrne, 2001).

## 5. Results

### 5.1 The Measurement Model

The measurement model (Figure 1) was assessed via CFA. Maximum likelihood estimation (MLE) method was used as it affords a stable means of assessing parameter complications (Suki, 2016). All the goodness-of-fit (GOF) statistics were close to acceptable limits ( $\chi^2=1493.48$ ;  $df=377$ ;  $p < 0.001$ ;  $\chi^2/df=3.961$ ; CFI=0.917; TLI=0.904; PNFI=0.774; RMSEA=0.098). In order to get GOF within acceptable limit, fit-statistics were improved by adding paths based on the largest decrease in chi-square value through modification indices (MI) (Chou and Bentler, 1993).

GOF statistics showed adequate fit ( $\chi^2=1074.97$ ;  $df=361$ ;  $p<0.001$ ;  $\chi^2/df=2.978$ ;  $TLI=0.936$ ;  $CFI=0.947$ ;  $PNFI=0.866$ ;  $RMSEA=0.078$ ).

#### *Convergent validity*

According to Hair et al. (1998), establishment of convergent validity and discriminant validity evidences achievement of construct validity. Many studies used the criteria of significant factors loadings with values above 0.5. Admittedly, convergent validity is also evidenced if all Average Variance Extracted (AVE) values  $\geq 0.5$  (Fornell and Larcker, 1981) and composite reliabilities  $\geq 0.7$  (Hair et al. 1998). Table 1 also shows that all composite reliabilities were above 0.7, factors loadings were above 0.7. This indicates that convergent validity was established.

#### *Discriminant validity*

The evidence of discriminant validity was gathered from comparing shared variance with all other constructs with latent construct's unique variance (Fornell and Larcker, 1981). Average variance extracted (AVE) is the average amount of variance in indicator variables that a construct is managed to explain. It was found that the square root of AVE was more than the squared internal correlations among constructs of study as suggested by Fornell and Larcker (1981). Table 2 indicates that discriminant validity was achieved.

**Table 2: Discriminant validity**

Variable	PCE	EC	IEA	OEA	PKG	PI	GPB	M
PCE	<b>0.82</b>							
EC	0.69	<b>0.92</b>						
IEA	0.70	0.60	<b>0.86</b>					
OEA	0.70	0.88	0.64	<b>0.93</b>				
PKG	0.75	0.71	0.71	0.71	<b>0.83</b>			

<b>PI</b>	0.73	0.72	0.71	0.73	0.83	<b>0.90</b>		
<b>GPB</b>	0.66	0.62	0.68	0.61	0.76	0.78	<b>0.88</b>	
<b>M</b>	0.65	0.78	0.52	0.76	0.62	0.65	0.57	<b>0.94</b>
<b>Mean</b>	3.49	2.87	3.55	2.72	3.49	3.27	3.72	3.03
<b>Std. Dev.</b>	1.50	1.78	1.67	1.80	1.55	1.84	1.66	1.82
<b>Skewness</b>	0.713	1.22	0.607	1.245	0.728	0.760	0.519	1.034
<b>Kurtosis</b>	-0.307	0.137	-0.825	0.158	-0.395	-0.743	-1.031	-0.144

*Note:* Bold values on diagonal shows square root of AVE (Average Variance Extracted) for each construct; PCE= perceived consumer effectiveness; EC=ecological concern; IEA= inward environmental attitude; OEA=outward environmental attitude; PKG= attitude towards EF packaging; PI= purchase intention; M=media influence; GPB= green purchase behaviour

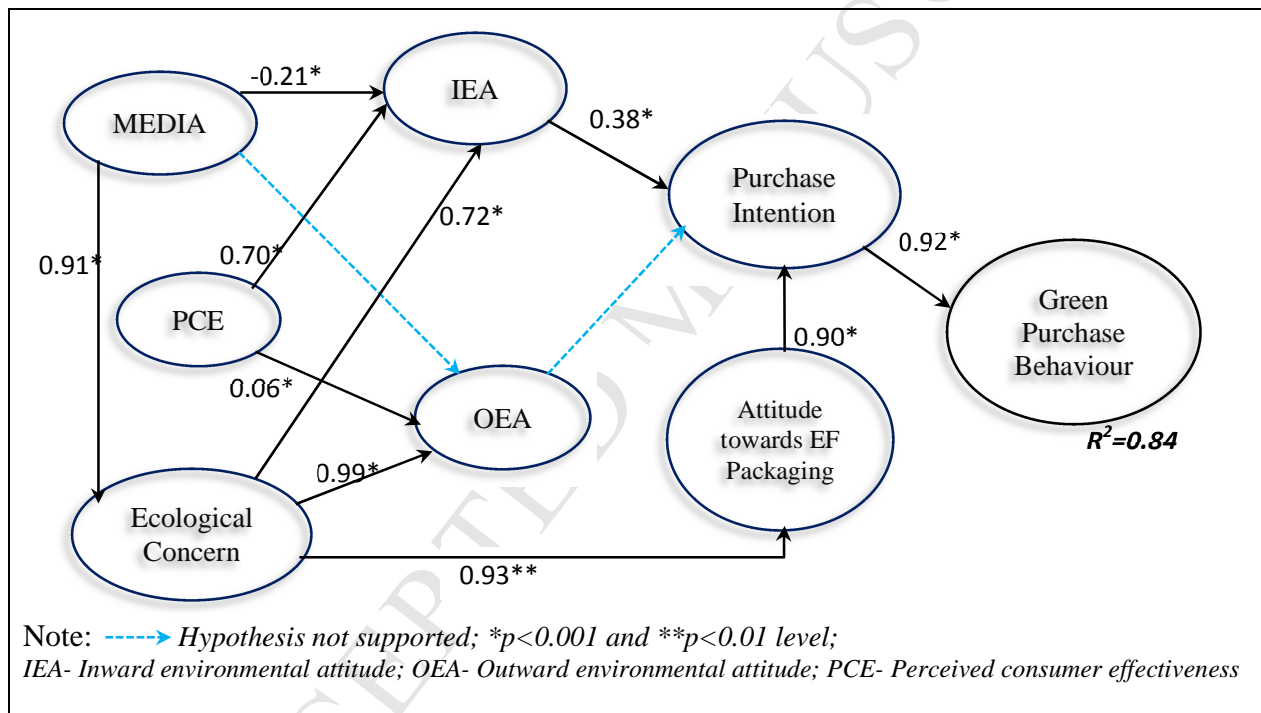
Furthermore, Table 2 shows that kurtosis values of scales were well below the threshold of  $\pm 10$  and skewness of all items was well below the threshold of  $\pm 2$ . This indicates that bell-shaped normal distribution approximated the data (Suki, 2015).

## 5.2 Structural Model

Having a reasonably well-fitting measurement model, Structural equation modeling (SEM) was used to test the hypothesized structural model. AMOS was used to estimate the path coefficients of the relationship between constructs in path analysis. Structural model represents set of one-or more dependence relationships linking the hypothesized model's constructs (Hair et al. 1996). To test such dependence relationships, model contains direct and indirect effect of construct on other construct (Hair et al. 1996). The proposed model contains many intervening constructs such as IEA, OEA etc. that requires the testing of indirect effects on purchase intention. The fit of the structural model is as follow:  $\chi^2=2018.48$ ;  $df=393$ ;  $p<0.001$ ;  $\chi^2/df=5.136$ ; CFI=0.879; PNFI=0.772; RMSEA=0.116. GOF statistics achieved poor fit and further improvement could be therefore needed (Marcoulides and Schumacker, 1996).

Based on the modification index, those paths were added which decrease the chi-square value most. The fit statistics indicate reasonable model-fit ( $\chi^2=1617.9$ ;  $df=377$ ;  $p<0.001$ ;  $\chi^2/df=4.292$ ; CFI=0.908; PNFI=0.766; RMSEA=0.078). The analytical results supported the research model with an explanatory power of 84 per cent, as shown in Figure 2. This is also depicted in the structural path coefficients (Table 3).

**Figure 2: Structural model**



Purchase intention was found to positively influence green purchase behavior ( $\beta = 0.91$ ,  $t = 21.786$ ;  $p < 0.001$ ). Green packaging was found to be positively related to purchase intention ( $\beta = 0.98$ ,  $t = 8.785$ ;  $p < 0.001$ ), which was also influenced positively by IEA ( $\beta = 0.432$ ,  $t = 11.787$ ;  $p < 0.001$ ). However, no relationship was observed between purchase intention and OEA ( $p > 0.05$ ). With regard to environmental attitude, PCE was found to be conducive to the

formation of IEA ( $\beta = 0.634$ ,  $t = 14.089$ ;  $p < 0.001$ ) and OEA ( $\beta = 0.070$ ,  $t = 3.467$ ;  $p < 0.001$ ). PCE-OEA link was significant but very weak. Moreover, ecological concern was found to be a significant determinant of OEA ( $\beta = 0.996$ ,  $t = 16.539$ ;  $p < 0.001$ ), and of attitude towards EF packaging ( $\beta = 0.802$ ,  $t = 17.448$ ;  $p < 0.001$ ) and IEA ( $\beta = 0.60$ ,  $t = 7.291$ ;  $p < 0.001$ ). More aptly, media influence was found to be positively related to ecological concern ( $\beta = 0.881$ ,  $t = 19.187$ ,  $p < 0.001$ ), and negatively related to IEA ( $\beta = -0.165$ ,  $t = -2.146$ ;  $p < 0.001$ ), but failed to influence OEA ( $p > 0.05$ ) (Table 3).

**Table 3: Standardized regression weights with direct, indirect and total Effects**

Paths	Coefficients ( $\beta$ )	t-value	Hypothesis Supported	Direct effect	Indirect effect	Total effect
PI $\rightarrow$ GPB(+)	0.92	21.786*	Yes	0.916	---	0.916
PKG $\rightarrow$ PI (+)	0.90	8.785*	Yes	0.899	---	0.899
IEA $\rightarrow$ PI (+)	0.38	11.787*	Yes	0.383	---	0.383
OEA $\rightarrow$ PI (+)	-0.16	-1.682	No	-0.162	---	-0.162
PCE $\rightarrow$ IEA (+)	0.70	14.089*	Yes	0.698	---	0.698
PCE $\rightarrow$ OEA (+)	0.06	3.467*	Yes	0.063	---	0.063
EC $\rightarrow$ IEA (+)	0.72	7.291*	Yes	0.724	---	0.724
EC $\rightarrow$ OEA (+)	0.99	16.539*	Yes	0.995	---	0.995
EC $\rightarrow$ PKG (+)	0.93	0.742**	Yes	0.933	---	0.933
M $\rightarrow$ IEA (+)	-0.21	-2.146*	Yes	-0.206	0.661	0.455
M $\rightarrow$ OEA (+)	0.01	0.052	No	0.003	0.908	0.911
M $\rightarrow$ EC (+)	0.91	19.187*	Yes	0.913	---	0.913

Note: \* $p < 0.001$  level; \*\* $p < 0.01$  level; PKG= Attitude towards EF packaging; M=Media influence

Table 3 depicts the direct and indirect effects of variables as postulated in a structural model. It was found that media influenced inward environmental attitude more through indirect effect (0.661) than through direct effect (-0.206). Similarly, outward environmental attitude was also influenced by media more through indirect effect (0.908); direct effect was insignificant (0.0003).

## 6. Discussion and Implications

The present paper examined the journey of environmental attitude, intentions and behavior formation for green products in a holistic manner. Moreover, an attempt is also made to understand and empirically investigate major antecedents of consumers' environmental attitude formation that eventually influences green behavior. Attitudes as postulated in Theory of Reasoned action (Ajzen, 1981) are the stable predictors of green behaviors (Prakash and Pathak, 2017) and studied extensively in the field of green marketing to predict behaviors (Singh and Verma, 2017; Zhao et al. 2018).

Turning to the specific hypothesis, the results confirmed the influence of perceived consumer effectiveness on inward and outward environmental attitudes in line with previous studies (e.g., Jang et al., 2015). Consistent with value-belief-norm theory (Stern et al., 1995), consumers believing in their ability to solve environmental problems displayed higher inward environmental attitude and this may result into frequent purchase of environmental friendly products (Cho et al., 2013). Green companies should target consumers with high PCE and convert them as opinion leaders to finally create a niche, wherein these green consumers act as green brand evangelists.

However, the influence of PCE on outward environmental attitude was much weaker ( $\beta = 0.06$ ) than on inward environmental attitude ( $\beta = 0.70$ ). Consumers' self-belief and individual abilities do not allow them to believe that their "public" involvement with environmental issues can make any significant difference in perusal of environmental behaviors. Green behavior is perceived as inconvenient and time consuming (Follows and Jobber, 2000), therefore, government should

allocate more resources to motivate consumers. Policy makers should communicate to the public that increased standard of green living will benefit the environment and create a feeling of wellbeing (Leonidou et al., 2010).

In line with previous studies (e.g., Crosby et al., 1981; Alwitt and Pitts, 1996; Tang and Lu, 2013), it was found that ecological concern influences both inward ( $\beta = 0.72$ ) and outward environmental attitudes ( $\beta = 0.99$ ) positively. Therefore, consumer segment with higher ecological concern can be identified, targeted and nurtured carving out a loyal green consumer-base. It is also to be noted that their concern about environment is reflected in urging social and political changes that help environmental preservation. Thus, various activation campaigns with greater involvement of environmentally concerned consumers can bring positive changes to society. They can also help brands achieve strong brand identity as environment-friendly brands. Advertising and promotion can also be geared up highlighting the impact of consumers with higher outward environmental attitude, who have the power to make some profound changes.

Not-for-profit organizations can also induce attitudinal changes by using media as well as targeted social media marketing campaigns to create environmental awareness, and reinforce environmental resource preservation attitude among concerned citizens. Finally, consumers with higher EC form a large consumer segment (Vermillion and Peart, 2010; Ertz et al., 2016) and therefore green marketers must pay attention to effectively communicate with this segment in order to achieve greater penetration of green products. Rightly positioned strategies are essential in green products market, but they must also be supplemented through effective marketing



programs, tailored in accordance with the consumers depicting higher inward environmental attitude.

Media ( $\beta = 0.91$ ) also significantly influence ecological concern among consumers (Yu et al., 2017). In line with Rios et al. (2006), our results highlight that media's ever-increasing attention to highlight various environmental issues can really shape higher ecological concern among consumers. Media influence was significant, but surprisingly negative to inward environmental attitude ( $\beta = -0.21$ ). The main reason may be the over-reliance on media, coupled with inappropriate message strategy in their advertisements, which failed to provide enough persuasion. However, media influence failed to shape outward environmental attitude directly because of inappropriate selection of supporting arguments or inappropriate agenda setting.

Indeed, ecological concern mediates the influence of media on outward environmental attitude (indirect effect=0.908) more than on inward environmental attitude (indirect effect=0.661). Mass media is the major media in India through which people acquire information. While setting agenda related to environmental issues, media should highlight immediate detrimental effects of chosen environmental issues in a national campaign to raise ecological concern of consumers. To maximize the impact, publicizing statistics of various environmental issues in newspapers and magazines would be an effective media strategy as visuals with numbers are recalled most easily. Furthermore, government should have more environment-related advertisements. It should convey a strong message through providing recycling facilities, special education programs on eco-sustainability, and by rewarding people who execute exceptional green decisions (Leonidou et al., 2010).

Government can initiate some sustainability initiatives by promoting certain events like “Vancouver Marathon” or “Boston Marathon”. Green marketers are advised to promote these events through media, appropriating target audiences and encouraging green behavior among environmentally concerned consumers. Such participatory programs with the right kind of engagement strategies along with mass media reporting will surely enhance the motivation to adopt general green behavior reflected through outward environmental attitudes (Leonidou et al., 2010). Such aggressive attempts from government can help build confidence in concerned consumers about their ability to bring change in environmental consumption.

Importantly, green purchase intentions are also influenced by attitude towards EF packaging ( $\beta = 0.90$ ). Thus, green marketers are advised to create awareness about green packaging used and its impact on environment (Nittala, 2014). Information about green labels for packaging can be provided so that consumers can easily identify green products. In fact, government should take an initiative in communicating to consumers about which packaging materials are environment-friendly; or it can develop some unanimous mechanism for identifying such materials. Policy for packaging norms can be strengthened in order to provide self-declarative claims about packaging materials and post-use disposal.

Consumer education regarding green packaging can eventually increase green purchases. For example, consumers prefer recycled paper over plastic recycling as they are not aware that recyclable PET and its per cent use in bottles (30 per cent in Coca-Cola bottles using PlantBottle® technology), or that gas based technology tops reduce the density of plastic used in bottles

(Mucell® technology employed by Unilever) (Magnier and Scoormans, 2015). This implies that government should formulate green policy with provisions for promotional incentives to companies that use genuine green packaging (Rahbar and Wahid, 2011).

Overall, this study contributes to the extant literature by proposing empirically testable model that helps to identify and confirm the role of media influence and green packaging on environmental attitude and green purchase behavior in the context of emerging economies. With this, this study is the first one that draws a clear distinction between inward and outward environmental attitudes differently influencing green purchase intention leading to formation of green purchase behavior. These two levels of environmental attitudes in fact co-exist, and triggering them effectively may enhance individuals' green purchase behavior. Lastly, this study also measured the relation of perceived consumer effectiveness and ecological concern on formation of inward and outward environmental attitude in a parsimonious framework with empirical insights that helps researchers, marketers and public-policy makers alike to better understand green consumers in emerging economies.

Like all studies, this study has inherent limitations. This study has used consumers' purchase behavior for general green products. Its scope can be broadened by considering some specific green products. Moreover, it is important that intention and behavior are measured at the same time and the variations in antecedent factors caused by changes in their ecological concern and inward-outward environmental attitudes. A longitudinal study can provide more relevant insights for predicting green purchase behaviors more accurately. Furthermore, it is helpful to draw comparisons between developed and developing economies as their ecological concern and their

private and public environments are highly dynamic. This study has not considered product or product category specific green behavior. The generalizability of the results is limited since the study was conducted on an Indian sample who were highly educated and had high incomes. This study has not linked culture with attitude-intention-behavior relationships. Future studies can utilize culture as a focal construct and understand green purchase behavior from cultural orientations perspective. Furthermore, study rests on self-reported behaviors and thus due care is to be taken as it affects the research conclusions.

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### Appendix I: Measures of the study with items

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#### Inward environment conscious attitude

- I am very concerned about the environment.
- I would be willing to reduce my consumption to help protect the environment.
- I would give part of my own money to help protect wild animals.
- I have asked my family to recycle some of the things we use.

#### Outward environment conscious attitude

- Major political change is necessary to protect the natural environment.
- Major social changes are necessary to protect the natural environment.
- Humans are severely abusing the environment.

#### Perceived consumer effectiveness

- Each person's behaviour can have a positive effect on society by signing a petition in support of promoting the environment.
- I feel I can help solve natural resource problem by conserving water and energy.
- There is not much I can do about the environment (R).
- I feel capable of helping solve the environment problems.

#### Ecological concern

- I am extremely worried about the state of the world's environment and what it will mean for the future generations.
- Mankind is severely abusing the environment.
- When humans interface with nature it often produces disastrous consequences.
- The balance of nature is very delicate and easily upset.
- Humans must live in harmony with nature in order to survive.

#### Green packaging

- I am in lookout for social labeling on the package which says "an eco-friendly product"
- The reusable milk bottles is more appropriate than milk cartons
- I bring my own bottle for refilling than buy a new one
- The recyclable paper packaging would be preferred over non-recyclable plastic.

#### Media influence

- I agree TV channels like NDTV with Greenathon have enhanced knowledge about green products.
- Newspapers and Magazines are a good source of propagating environment issues.
- The environment consciousness has been created by the role of media lately.

#### Purchase intention

- I prefer buying environmental friendly products.
- Buying environmental friendly products have long term benefits.
- I feel a sense of accomplishment buying eco-friendly products.

***Green purchasing behaviour***

- I buy environmentally friendly products whenever possible.
  - I buy organic food whenever possible.
  - I use products made from recycled materials whenever possible.
  - I recycle household waste, whenever possible.
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## **Causality analysis of media influence on environmental attitude, intention and behaviors leading to green purchasing**

### **Highlights:**

- Media influences environmental concern positively and inward environmental attitude negatively.
- Inward environmental attitude impacts green purchasing.
- Perceived consumer effectiveness emerged as strong predictor of inward environmental attitude compared to outward environmental attitude.
- Environmental concern impact outward environmental attitude more compared to inward environmental attitude and attitude towards EF packaging.