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# Predicting green product consumption using theory of planned behavior and reasoned action

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## ABSTRACT

The extended Theory of Planned Behavior (TPB) incorporates environmental concern, a critical variable in green marketing literature, intending to achieve triple bottom line (TBL). In this context, this study aims to validate TPB and its extended form (mediating role of TPB variables), as well as the Theory of Reasoned Action (TRA), to predict Indian consumers' green product purchase intention. We collected primary data from 521 respondents as input, establishing validity through confirmatory factor analysis (CFA). Our empirical results of structural equation modeling (SEM) show that extended TPB has higher predictability than TPB and TRA in green marketing settings. Consumer attitude and perceived behavioral control significantly predicts purchase intention whereas subjective norm does not. Our findings also suggest that TPB mediates the relationship between environmental concern and green products purchase intention. An additional construct in the new model considerably contributes to improving the understanding of green products purchase intention formation and could become a sustainable mainstream variable.

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## 1. Introduction

Over the past two decades, environmentalism has reflected consumers' embrace of sustainable consumption (Han et al., 2009; Kalafatis et al., 1999). As consumers become aware of their consumption-related environmental problems, they seek to purchase environmentally friendly products (Kilbourne et al., 2009; Laroche et al., 2001) for future generations' benefit. While satisfying personal needs remains central to consumer behavior, environmental preservation has also become a primary concern (De Moura et al., 2012; Verbeke et al., 2007). Pertaining sustainability, balancing the ecosystem (ecological), profit-generation (economic) and people (social) is a core concern (Vermeir and Verbeke, 2008).

This increased awareness and interest in sustainable consumption is expected to influence consumer purchase decisions (De Moura et al., 2012). Moreover, sustainable consumption has drawn more attention from corporate decision-makers due to stricter environmental regulation and growing stakeholder pressures focused on preserving the environment (Hult, 2011; Maignan and Ferrell, 2004; Banerjee et al., 2003; Karna et al., 2003).

Under the operational perspective, sustainable consumption may be achieved by encouraging green product consumption. The term "green products" is defined as "products that will not pollute the earth or deplete natural resources, and [that] can be recycled or conserved" ("Green Products") (Shamdasani et al., 1993). To promote Green Products, marketers must focus on consumer preferences and decision-making processes (Cherrier et al., 2011). Nevertheless, marketers have not succeeded at selling Green Products, due to environmentally concerned consumers' fluctuating preference for these products (Ha and Janda, 2012; Kilbourne and Pickett, 2008) despite remarkable growth rate in these consumers (Schlegelmilch et al., 1996). To tackle this issue, Barber (2010) recommended that scholars investigate consumers' adoptability of sustainable practices, attitudes, and purchase intentions for Green Products.

Meta-analysis reveals that environmental concern is one of the important sustainability variables in green marketing literature (Wiernik et al., 2013). The term "environmental concern" was derived from political discourse and refers to values, attitudes, emotions, perceptions, knowledge and behaviors related to the environment (Ogle, 2004; Bamberg, 2003). Initially, scholars perceived environmental values, perceptions, and knowledge as critical to environmental concern (Maloney and Ward, 1973), but thereafter categorized them as precursors to environmental concern. Subsequently, researchers excluded actual behavior from the

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definition of environmental concern to avoid circularity (Bamberg, 2003). Fundamentally, environmental concern is a direct predictor of specific environmental behaviors, which in turn are predicted by consumer attitudes toward specific behaviors (Weigel, 1983; Ajzen and Fishbein 1977).

Another factor that affects the degree of environmental concern is consumers' country of origin. Empirically, consumers from developed countries are more concerned about the environment than those from developing countries. Nevertheless, to prevent further environmental degradation more research is needed to understand consumers' Green Product purchase behavior in developing countries that have varied environmental concern, belief, and attitudes than their counterparts across world (Singh and Gupta, 2013). In this context, this study aims to validate TPB and its extended form (mediating role of TPB variables), as well as the Theory of Reasoned Action (TRA), to predict consumers' green product purchase intention in India, the second fastest growing developing economy. The study of Green Purchase behavior in an emerging market like India is important because of four reasons. (a) The country is among the world's ten largest economies, based on absolute gross domestic product (Sharma and Srinivasan, 2008; Gwartney and Lawson, 2007), and is expected to become the world's third largest economy by 2050 (Pillania, 2008). (b) Having a large consumer base, high growth rates, and low inflation and labor costs, India has a competitive advantage that make it an attractive market wherein to invest (The Economic Times, 2014; D'Souza and Peretiakko, 2002). (c) From an economic perspective, industrial growth is crucial to sustain growing populations such as India's, which ultimately results in production of additional environmental problems. This industrial pollution continuously degrades the quality of the India's environment (D'Souza and Peretiakko, 2002). (d) Green Purchase behavior in India has been largely unexplored. Only a few notable studies have been published in the area of Green Product purchase intention with data from the Indian subcontinent (e.g. Singh and Gupta (2013), Paul and Rana (2012)) despite the recent growth in green marketing activities, which has increased consumer knowledge and compelled consumers to purchase Green Products (Rahbar and Wahid, 2011).

Traditionally, scholars perceived Indians as environmentally conscious (Goswami, 2008; Jain and Kaur, 2004). In 2012, Indians were more conscious of their environmental impact and obtained a higher Greendex score than consumers from China, Brazil, Russia, Germany, Canada, Australia and America (Greendex, 2012). However, researchers have yet to identify why Indian consumers exhibit this behavior, and why their low green product consumption is not commensurate with their high environmental consciousness (Sheth et al., 2011).

The models grounded in social psychology such as Fishbein and Ajzen's (1975) Theory of Reasoned Action ("TRA") and Ajzen's (1991) Theory of Planned Behavior ("TPB") have been used to understand consumer green purchasing behavior (Albayrak et al., 2013). Nevertheless, considering the already established role of country-context in green consumption, consumers likely do not have partial or full or partial volitional control in green purchases, and applications of these models ought to be validated.

In sum, consumers' purchase intention ("PI") for green products can be studied by applying the TPB tenets of green consumption. This study aims to compare TRA, TPB, and extended TPB models (inclusion of direct and indirect influence of environmental concern on purchase intention) and their effectiveness in predicting purchase green product purchase intention. The following section describes our conceptual framework. Section 3 presents our methodology, and Section 4 provides a description of the results of reliability and validity tests, through confirmatory factor analysis and hypothesis testing through structured equation modeling.

Section 5 describes the implications and limitations of the study.

## 2. Conceptual framework

### 2.1. Environmental sustainability and green consumption

According to the Norwegian Ministry for the Environment (1994), the term "sustainable consumption" refers to "the use of goods and services that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources, of toxic materials and emissions of waste and pollutants over the life-cycle, so as not to jeopardize the needs of future generations" (De Moura et al., 2012). Sutton (2004) defined environmental sustainability as "the ability to maintain things or qualities that are values in the physical environment" (cited in Jones et al. (2011)). From an environmental perspective, green consumption could aid achieving environmental sustainability, and, for this reason, maximizing sales and consumption of green products was green marketing's main agenda (Bonini and Oppenheim, 2008). Creating a shared sense of responsibility for the environment could incentivize consumers to purchase green products. (Chen and Peng, 2012) in the short run and adopt greener lifestyles in the long run.

In purchase intention formation, the role of personal/social factors were examined via TRA (Park, 2003), while the influence of added non-volitional factors were considered by employing TPB (Han et al., 2010). Despite acceptance of these theories in predicting the relationship between consumer attitude and intention behaviors, such as recycling behaviors (Davis et al., 2009; Newholm and Shaw, 2007; Davies et al., 2002), green purchase behaviors (Chen and Tung, 2014; Ha and Janda, 2012), and organic food choice (Zhou et al., 2013; Paul and Rana, 2012), several researchers doubted these theories' explanatory power in different research settings and contexts, such as (Black, 2010; Armitage and Conner, 2001).

Currently the models developed under these theories are country-specific and cannot be readily applied outside their country-context (Lee and Green, 1991; Green et al., 1983). Moreover, the vast majority of studies have been conducted in the context of "Euro-American" countries (Cheah and Phau, 2011). In addition, consumer attitude towards green consumption vary depending on several factors, including culture, and consumers' expressed environmental concern (Singh and Gupta, 2013).

### 2.2. TRA and TPB

Fishbein and Ajzen (1975) developed TRA to explain customer behavioral intentions. Ajzen and Fishbein (1980) assumed that intentions are the single most important predictor of human behavior, and that humans are rational in making systematic use of any available information (Ding and Ng, 2009). The model was originally developed and concerned with predicting intentions to take reasoned action in ordinary life experiences, such as using birth-control pills. TRA addresses the impacts of cognitive components (Guo et al., 2007).

TRA serves to analyze for nonroutine thinking decisions, for such behavior which requires critical deliberation (Oppermann, 1995). Put differently, TRA is effective at explaining psychological/cognitive processes to comprehend consumers' contextual decision-making. (Han and Kim, 2010). TRA's central tenet is individuals' intention to engage in given behavior. In this context, "intention" refers to willingness or readiness to engage in behavior under consideration (Han and Kim, 2010; Ajzen, 1985). Under this theory, green products purchase intention indicates the extent to which consumers' are willing/ready to purchase green products or adopt green choices/alternatives.

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