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**Do consumers care about green supply  
chain management (GSCM) efforts?  
Analyzing the role of protected values  
and the Halo Effect in products'  
evaluation**

**Juan Pablo Loaiza Ramírez**

Universidad Nacional de Colombia  
School of Engineering, Department of Systems and Industrial Engineering  
Bogotá D.C., Colombia

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# **Do consumers care about green supply chain management (GSCM) efforts? Analyzing the role of protected values and the Halo Effect in products’ evaluation**

**Juan Pablo Loaiza Ramírez**

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Advisor:

Carlos Eduardo Moreno Mantilla, Ph.D.

Co-advisor:

Torsten Reimer, Ph.D.

Research Line:

Operations Management – Sustainable and Green Supply Chain Management

Department of Systems and Industrial Engineering

School of Engineering

Universidad Nacional de Colombia

Bogotá D.C.

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*Al dador de vida eterna, Cristo. A mis padres por su increíble resistencia, y a mi hermana por su enorme determinación artística.*

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## Resumen

Extensos esfuerzos se están llevando a cabo para mitigar la crisis ambiental, la cual es generada principalmente por las actividades humanas. Desde una perspectiva de gestión de la cadena de suministro, las empresas mejoran su desempeño sostenible al tiempo que aumentan su desempeño organizacional. Específicamente, las empresas están interesadas en entender si los consumidores se preocupan por sus prácticas ecológicas, porque ellos son la fuente de rentabilidad de las empresas. Se cree que los consumidores estarían dispuestos a pagar un premium (WPP, por sus siglas en inglés), o tendrían mayores intenciones de compra (PI, por sus siglas en inglés), por productos ambientalmente diferenciados, pero esto no siempre ocurre. Además, hay poca evidencia sobre el efecto integrado de las prácticas de Gestión de la Cadena de Suministro Verde (GSCM, por sus siglas en inglés) intra e interorganizacionales en el consumismo verde. Por lo tanto, este estudio adopta dos enfoques psicológicos (i.e., valores protegidos y efecto halo) para describir la relación mencionada en dos modelos que abarcan mediación y moderación. Se recopiló datos de 351 estudiantes universitarios colombianos a través de un experimento con tres condiciones basadas en productos, y las hipótesis de los modelos se probaron utilizando regresiones lineales de medidas repetidas en dos instancias y pruebas no paramétricas. Los resultados indicaron que el desempeño percibido del producto media el efecto de las prácticas de GSCM en el WPP y el PI de los consumidores (efecto halo). Adicionalmente, la orientación moral de los consumidores hacia el medio ambiente (valores protegidos) modera el efecto de las prácticas de GSCM en el WPP, PI y la percepción de desempeño del producto de los consumidores. En otras palabras, el estudio encontró que las personas con valores protegidos evalúan mejor el producto no solo por sus atributos ecológicos, sino también por su mayor percepción del desempeño del producto. Las contribuciones se centran en el rol de los enfoques psicológicos en los estudios de GSCM para comprender las preferencias de los consumidores.

**Palabras clave:** Gestión verde de la cadena de suministro (GSCM), Consumidores, Disposición a pagar un premium, Intención de compra, Valores protegidos, Efecto halo

## Abstract

Widespread efforts are being made to mitigate the environmental crisis mainly driven by human activities. From a supply chain management perspective, companies improve their sustainable performance while increasing their organizational performance. Specifically, companies are interested in understanding if consumers care about their green practices because consumers are the sources of the companies' profitability. It is supposed that consumers would be willing to pay a premium (WPP), or would have higher purchase intentions (PI), for environmentally differentiated products, but that is not always the case. Moreover, there is scant evidence regarding the integrated effect of intra- and inter-organizational Green Supply Chain Management (GSCM) practices on green consumerism. Therefore, this study adopts two psychological approaches (i.e., protected values and halo effect) to describe the mentioned relationship in two models that encompass mediation and moderation. Data were collected from 351 Colombian university students through a behavioral experiment with three product-based conditions, and the hypothetical models were tested using two-instances repeated-measures linear regressions and non-parametric tests. The results indicated that the perceived product performance mediates the effect of the GSCM practices on consumers' WPP and PI (halo effect). Additionally, consumers' moral orientation toward the environment (protected values) moderates the effect of GSCM practices on consumers' WPP, PI and perceived product performance. In other words, the study found that people who held protected values evaluate the product better not just for its green attributes, but because of their increased perception of the product performance. The contributions are centered in the role of psychological approaches in the GSCM studies to understand consumers' preferences.

**Keywords:** Green Supply Chain Management (GSCM), Consumers, Willingness to pay a premium, Purchase intention, Protected values, Halo effect

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and was evaluated by the following juries:)

Ana Beatriz Lopes de Sousa Jabbour (Ph.D.)  
Afiliación (Affiliation): Lincoln International Business School, University of Lincoln

Devika Banerji (Ph.D.)  
Afiliación (Affiliation): Metropolitan State University of Denver

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## Abbreviations and Symbols List

<i>Abbreviation/ Symbol</i>	<b>Term</b>
%	Percent
<i>a</i>	Partial indirect effect in the mediation analysis: effect of the condition on the mediator
<i>ab</i>	Whole indirect effect in the mediation analysis
<i>AGFI</i>	Adjusted Goodness-of-Fit Index
<i>ANOVA</i>	Analysis of Variance
<i>b</i>	Partial indirect effect in the mediation analysis: effect of the mediator on the dependent variables
<i>BootLLCI</i>	95% Bootstrapping Lower Limit Confidence Interval
<i>BootSE</i>	Bootstrapping Standard Error
<i>BootULCI</i>	95% Bootstrapping Upper Limit Confidence Interval
<i>c</i>	Total effect in the mediation analysis
<i>c'</i>	Direct effect in the mediation analysis
<i>C1</i>	Condition 1: Non-green product
<i>C2</i>	Condition 2: “Partially” green product (internally oriented GSCM practices)
<i>C3</i>	Condition 3: “Totally” green product (internally + externally oriented GSCM practices)
<i>CFA</i>	Confirmatory Factor Analysis
<i>CFI</i>	Comparative Fit Index
<i>CLIENT</i>	Customer/Client Collaboration
<i>Co.</i>	Condition
<i>CSCM</i>	Circular Supply Chain Management
<i>D<sup>2</sup></i>	Mahalanobis distance for multivariate detection of outliers
<i>df</i>	Degrees of freedom
<i>ED</i>	Eco-Design
<i>EFA</i>	Exploratory Factor Analysis
<i>F</i>	Test that indicates if the independent variables in a linear regression are significant
<i>Fr.</i>	Frequency
<i>GFI</i>	Goodness-of-Fit Index
<i>GPURC</i>	Green Purchasing
<i>GSCM</i>	Green Supply Chain Management
<i>IEM</i>	Internal Environmental Management
<i>LISREL</i>	Software for Structural Equation Models
<i>LLCI</i>	95% Lower Limit Confidence Interval
<i>M</i>	Mean
<i>MEMORE</i>	MEdiation and MOderation analysis for REpeated measures designs

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<i>MSE</i>	Mean Squared Error
<i>NFI</i>	Normed Fit Index
<i>NNFI</i>	Non-Normed Fit Index
<i>PEF</i>	Perceived Environmental Friendliness
<i>PI</i>	Purchase Intention
<i>PNFI</i>	Parsimony Normed Fit Index
<i>PPP</i>	Perceived Product Performance
<i>PV</i>	Protected Values
<i>p-value</i>	Probability value (estimated probability of rejecting the null hypothesis)
<i>R</i>	Strength of the linear association between variables
<i>R<sup>2</sup></i>	Percent of the variability of the dependent variable explained by the linear model
<i>RFI</i>	Relative Fit Index
<i>RMSEA</i>	Root Mean Square Error of Approximation
<i>RMSR</i>	Root Mean Square Residual
<i>SCM</i>	Supply Chain Management
<i>SD</i>	Standard Deviation
<i>SE</i>	Standard Error
<i>SPSS</i>	Statistical Package for the Social Sciences
<i>SRMR</i>	Standardized Root Mean Residual
<i>SSCM</i>	Sustainable Supply Chain Management
<i>t</i>	Coefficient divided by its standard error (in a linear regression)
<i>ULCI</i>	95% Upper Limit Confidence Interval
<i>WPP</i>	Willingness to Pay a Premium
<i>Zscore</i>	Normalized score
<i>α</i>	Cronbach's alpha
<i>χ<sup>2</sup></i>	Chi-square



# Introduction

The scientific community has warned about a pathway of damages to nature and human society resulting from environmental degradation (Ripple et al., 2017). To slow down these trends, a worldwide transformation is required in terms of disseminating technologies, behaviors, social norms, and structural reorganization (Otto et al., 2020). In particular, global production and consumption systems can learn from emerging supply chain management practices to improve environmental and social sustainability (Pagell & Shevchenko, 2014).

From a Green Supply Chain Management (GSCM) perspective, companies should strive for improving their sustainability, without leaving aside their organizational performance (Dubey et al., 2017). Companies strive for being more sustainable (Roy et al., 2018) and for satisfying consumers' needs without damaging the environment (Arli et al., 2018), while earning profits. In particular, an ongoing concern of firms is the understanding of consumers' purchases when buying products that are manufactured in a green supply chain (Groening & Zhu, 2019).

Consumers are increasingly using companies' information to make critical decisions about which products they buy or what the story behind them is (Winston, 2014). The relationship between sustainability business practices and consumers' willingness to pay a premium (WPP) —or consumers' purchase intention (PI) (H. Kim & Lee, 2018)— is framed in the classic approach of environmental product differentiation. Under this paradigm, the extra costs resulting from enhancing the firm's environmental performance are charged to the consumer as a premium price in the final product (Reinhardt, 1998, 2000).

However, consumers are not always willing to pay more for those “green” or environmental attributes (Usrey et al., 2020). Although consumers manifest attitudes toward ecofriendly products, they do not always materialize those preferences (Alsmadi, 2007), manifesting what it is called the attitude-behavior gap (Groening & Zhu, 2019). Even more, some consumers do not care about the environment (Barbarossa & De Pelsmacker, 2016), and will not be willing to pay for green products. It is worth mentioning that few studies have tackled this problem from a GSCM perspective (Bowon Kim et al., 2014).

Then, it would be relevant to evaluate empirically to what extent consumers perceive the GSCM efforts deployed by companies, if they are inclined to reward those efforts, and what mechanisms could serve to describe consumers' WPP and PI. Thus, behavioral and cognitive research could offer new perspectives for understanding consumers' motivations to prefer companies' products that are immersed in green and sustainable supply chains (Sarkis, 2018).

Therefore, this study is built on two approaches in psychological research: the protected values and the halo effect. It is interesting how these two perspectives can join to explain the consumers' WPP and PI from a supply chain and psychological perspective. To the best of the authors' knowledge, little research has been carried out using both psychological approaches to explain diverse phenomena (Sheehan & Lee, 2014). Considering both approaches, few research focuses on the sustainable domain (Dahlinger & Wortmann, 2016), and even less on the consumers' response to environmentally differentiated products along the companies' supply chains, which is the main focus of the emerging research area of GSCM. The present study aims to fill this knowledge gap that has been practically untapped in the literature, exploring an innovative approach of a business and management problem from supply chain management and psychological perspectives.

# 1. Background and Justification

This chapter is divided into two main parts. The first one, *Background*, talks about the general academic landscape of this thesis. This first part briefs the role of companies and their consumers in the environment. Afterward, some psychological mechanisms to explain green consumerism are mentioned, together with the classic predominant approaches that companies employ to green their supply chains. At the end of the *Background*, the proposal of this thesis is stated. The second main part of this chapter, *Justification*, discusses the theories that serve as a basis for this thesis: Green Supply Chain Management (GSCM), Protected Values and the Halo Effect. As a closure, a general psychological framework is depicted, and the theories used in this thesis are located in it. This chapter finishes with the contributions this work intends to make.

## 1.1 Background

### 1.1.1 Companies and the Environment

The scientific community has warned humanity about a pathway of irreversible damages and catastrophic threats on the environment (Kendall, 1992; Ripple et al., 2020) that could not be inverted, steered, or slowed (Steffen et al., 2018) if more environmentally sustainable alternatives are not carried out (Ripple et al., 2017). In particular, climate change is a serious concern nowadays that represents a potential threat to human civilization (Spratt & Dunlop, 2019). Droughts and blazes are becoming more recurrent (Leonhardt, 2018), and global temperatures are increasing everywhere in the planet (Samenow, 2018). These anomalies are producing high mortality rates in tropical and subtropical regions (EFE, 2018), especially of animals (Hickok, 2018; Yin, 2018) and crops (MacDonald, 2018). All these tragedies are mainly “manufactured” by human beings, who are the most predatory species that has ever existed (Spratt & Dunlop, 2019). For these reasons, worldwide efforts have been made for mitigating these threats. Clear examples of those attempts are the Kyoto Protocol (UNFCCC, 2008) or the Paris Agreement (UNFCCC, 2018).

In consequence, efforts for counteracting climate change have been deployed from the world of business and companies (Ahmad & Thyagaraj, 2015; D’Souza, Taghian, & Khosla, 2007; Kumar, Luthra, & Haleem, 2014; Xu, Zeng, & He, 2017). From a Supply Chain Management (SCM)

perspective, companies strive for improving their sustainability, without leaving aside their organizational performance (Dubey et al., 2017; Halldórsson & Kovács, 2010).

Companies are becoming more aware of the importance of environmental and social issues, which has been reflected in their mission statements (Baalbaki & Guzmán, 2016), recognizing the critical role they have in contributing to the well-being of society (Málovics et al., 2008; Ülkü & Hsuan, 2017). Thus, companies are displaying several efforts to be more sustainable (Liu et al., 2012; Roy et al., 2018), and specifically to satisfy consumers' needs without damaging the environment (Arlı et al., 2018), while earning profits. Furthermore, in the future consumers should have no impact on companies, as every supply chain must be green (Groening & Zhu, 2019).

The classical view on this topic is mentioned by Reinhardt (2000). If managers of a company want to increase the firms' expected profits while improving its environmental performance, they should recognize that these enhancements would require additional costs. In this case, one method used by managers is to improve the environmental performance and take the extra costs product of those enhancements from consumers. This approach is called the environmental product differentiation strategy (Reinhardt, 1998; Rodríguez-Ibeas, 2007). However, more research is being carried out for understanding if consumers will pay more for environmental quality, or for those "green" efforts that companies make, since consumers are not always willing to do it (Usrey et al., 2020).

These environmental endeavors that companies are trying to deploy have been studied recently in the scientific literature. Bentham (1998) and Hussain (2000) show some of the first approaches to those "green" efforts. In fact, these practices—as they are known in the literature—have been developed intensively in the Green Supply Chain Management (GSCM) domain (Srivastava, 2007). In this context, a company encompassed in a supply chain interacts with different participants, including manufacturers, suppliers, distributors, and consumers (Qinghua Zhu et al., 2008, 2013). At this point, a company is able to display "internal practices", such as commitment from managers, cross-functional cooperation and eco-design (Walton et al., 1998), as facilitators to "external practices", such as green purchasing, collaboration with customers or investment recovery (Qinghua Zhu et al., 2010, 2017). These practices should be exploited not only for uplifting profit margins, but also for protecting the environment (Hanaysha, 2018). However, researches are still trying to understand the extent to which these practices influence consumerism, as it is still important to understand how consumers are able to observe and interact with green supply chains (Groening & Zhu, 2019).

### 1.1.2 Consumers as Primary Stakeholders

The consumer, as one of the primary stakeholders in the supply chain (Groening & Zhu, 2019; Vachon & Klassen, 2006, 2008), has initiatives, perceptions and opinions that could have implications for the supply chain design (Bask et al., 2013). In fact, consumers are responsible for the profitability and return on the investment of companies' practices and efforts (E. W. Anderson et al., 1994). Even more, the success of a green supply chain depends on the efforts that consumers do (Groening & Zhu, 2019). Thus, companies are interested in knowing if consumers really care about ethic practices (De Pelsmacker et al., 2013). Some of the extant literature suggests that consumers are aware of companies that are environmentally safe, responsible and sustainable (Baalbaki & Guzmán, 2016). Consumers value companies for their ecological initiatives to reduce waste and its impact on the environment (J. H. Kim et al., 2011; Smith, 2012). Even more, consumers' pressure is an essential driver that pushes companies to start and maintain sustainable developments (Gualandris & Kalchschmidt, 2014; Luthra & Mangla, 2018), and sometimes it is more demanding than governmental pressures (Winston, 2014). According to this, companies should not stop investing in eco-friendly, socially-responsible management and "greener products", to improve consumer retention and awareness (Shin & Thai, 2016; Ülkü & Hsuan, 2017).

However, there is evidence that contradicts this perspective, since low correlations have been found between general environmental concerns, such as consumers' attitudes and green-buying behaviors (Mainieri et al. as cited in Bhatia & Jain, 2013). This issue is known in the literature as the attitude-behavior gap (Gamma et al., 2018; Groening & Zhu, 2019; Johnstone & Tan, 2015; Joshi & Rahman, 2015; Moser, 2015, 2016; Tabares-Osorio & Zuluaga-Orozco, 2014). Other studies suggest that although consumers' attitudes point to strong pro-environmental concerns, sustainable buying behaviors are not materialized (Alsmadi, 2007; R. H. Donaldson, 2005), letting economic considerations trump over environmental concerns (Cleveland et al., 2005). In 2004, Ottman argues that consumers may be suspicious about green products with a premium value just because they are "green" (as cited in Pudaruth, Juwaheer, & Seewoo, 2015), even because those green features could have a negative effect (Usrey et al., 2020). As green products make ineffective claims because of the companies' deficiencies in communicating sustainability, average consumers have less opportunities to develop green product attitudes (Ahn, 2016; Grunert, 2011). In fact, some consumers do not care about the environment (Barbarossa & De Pelsmacker, 2016), and will not be willing to pay for green products. Moreover, the lack of environmental conscience in some companies is justified on the grounds of consumers' weak preferences for choosing sustainable products (Papadopoulos et al., 2010).

These inconsistencies reported in the literature open an opportunity to better understand the conditions under which consumers are willing to pay more for green supply chain practices. Traditionally, it is believed that consumers would be willing to pay a “premium” for environmentally differentiated products if the product lowers the consumers’ overall costs (Reinhardt, 2000). But, as shown before, consumers do not always agree in paying more; and not only consumers, but investors would not necessarily sponsor companies that are environmentally conscious (de Lange, 2017). However, consumers are increasingly using companies’ information to make critical decisions about which products they buy or the story behind them (Winston, 2014). Accordingly, it is time to re-examine and change individual behaviors (Ripple et al., 2017) to secure a sustainable future (Ripple et al., 2020), before facing an inevitable doomsday future (Spratt & Dunlop, 2019).

### **1.1.3 Mechanisms Used to Explain Green Consumerism**

The relationship between companies’ sustainability efforts and consumers’ concerns (i.e., between GSCM practices and green consumerism) is explained in the literature through different mechanisms. For example, *trust* is one of those mechanisms used for linking that relationship. It is defined as the willingness to rely on a partner whom confidence is given (Moorman et al., 1992). In this sense, trust could act as a mediator (Bailey et al., 2016; H. Kim & Lee, 2018; Martínez, 2015) or as a moderator (Bonn et al., 2016) in models that relate GSCM practices and consumers’ purchase or behavioral intentions, as shown in *Figure 1-1*. Another example is *cognitive dissonance*, which was introduced by Festinger (1957) as a state of tension produced by psychosocial inconsistencies between two cognitions. Cognitive dissonance has been modelled as a mediate variable between sustainable practices and consumers’ purchase intentions (Gillespie & Rogers, 2016), as shown in *Figure 1-2*, or as an explanation for the adoption of greener products (Ahn, 2016).

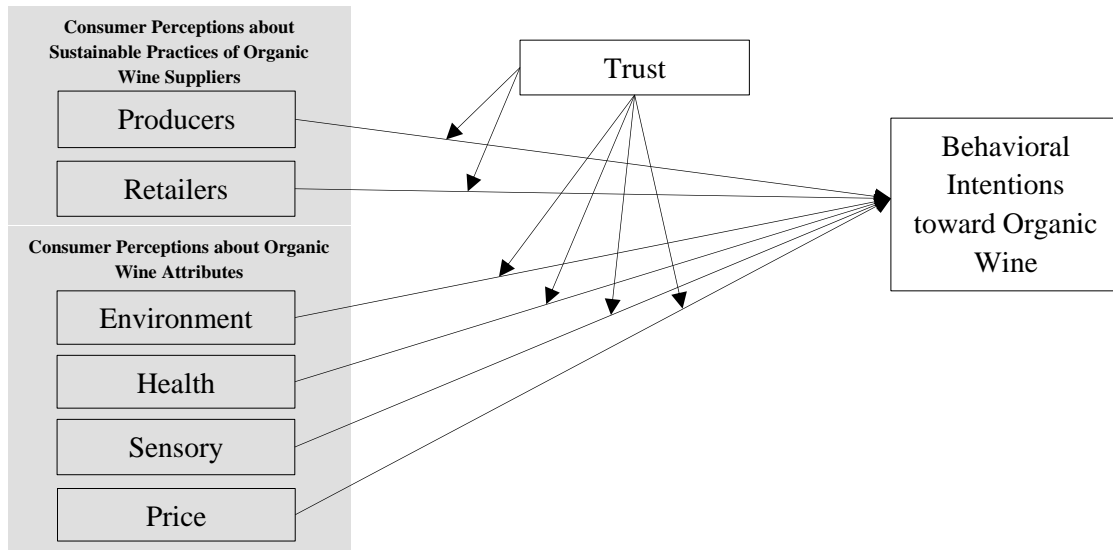


Figure 1-1. Research framework proposed by Bonn et al. (2016)

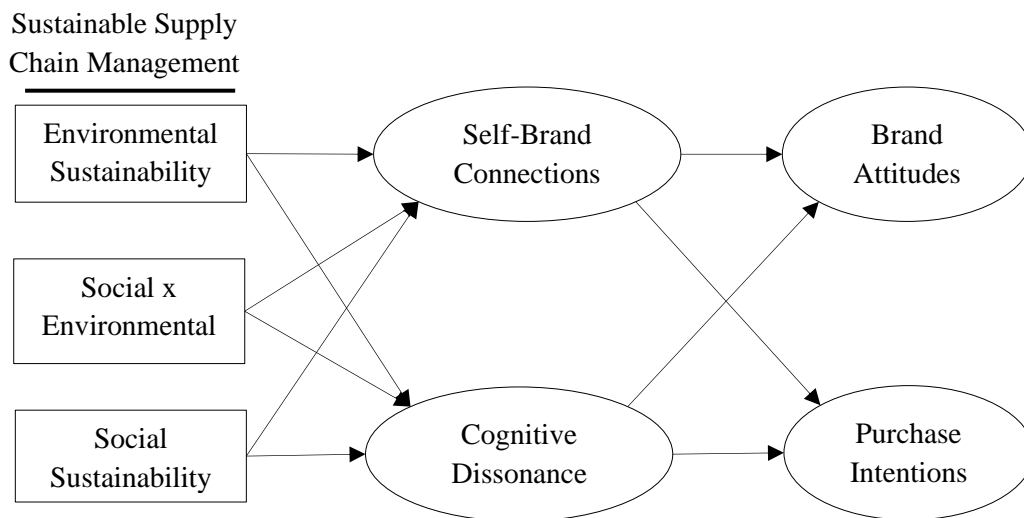


Figure 1-2. Theoretical model proposed by Gillespie & Rogers (2016)

Another mechanism mentioned in recent research is the *self-brand connections* construct. It occurs when consumers connect their self-concept to their perceived brand meaning (Escalas, 2004; Moore & Homer, 2008), and it has been used as a mediator in the GSCM practice-consumers' purchase intention relationship (Gillespie & Rogers, 2016; H. Kim & Lee, 2018) or as an indicator of the consumers' affinity to the company's brand (Cheng et al., 2012; Harrigan et al., 2018). Other research studies the role of *perception* as a mechanism. Some works integrate the perception of companies' green practices (Jayaraman et al., 2012; Jeong et al., 2014; Y. J. Kim et al., 2012; Petersen & Brockhaus, 2017), companies' green attributes (Jeong et al., 2014; Kwok et al., 2016; J.

Lee et al., 2018), product attributes (H'Mida, 2009; Nassivera & Sillani, 2017), or as part of psychological or psychographic factors, as shown in *Figure 1-3* (Namkung & Jang, 2017; Siwayanan et al., 2015).

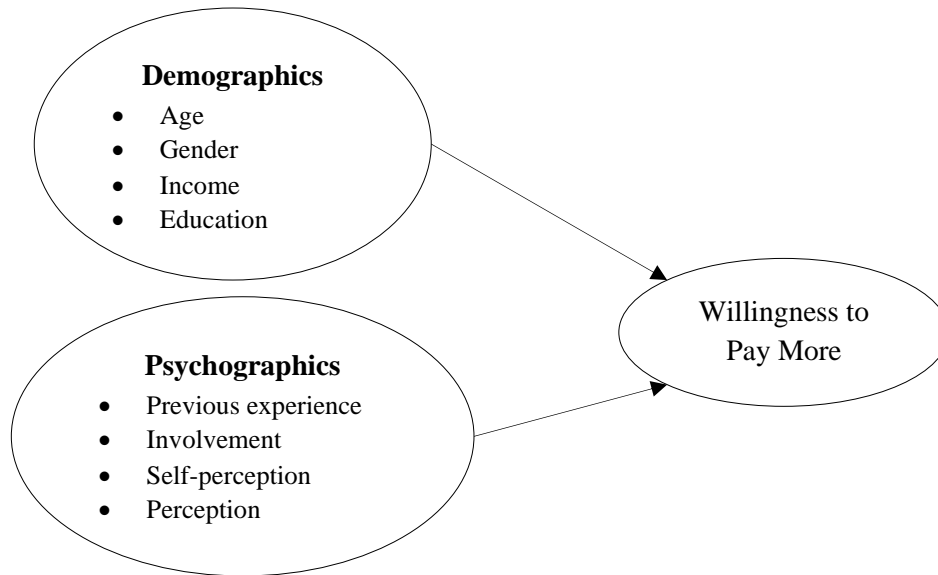


Figure 1-3. Conceptual framework proposed by Namkung & Jang (2017)

There are even more mechanisms described in the literature to relate product purchasing with green consumerism. The product *price*, as one of the most important factors in consumers' purchasing decisions (Jo & Shin, 2017), is generally included in the relationship between GSCM practices and consumers' purchase intention or consumers' willingness to pay as a moderator (B. C. Chekima et al., 2016; Bowon Kim et al., 2014). Similarly, the *premium price* (i.e., a higher price than the normal one) is studied as a mediator too (Vlosky et al., 1999), or included in the willingness to pay for a premium (Essoussi & Linton, 2010; H. Kim & Lee, 2018; Roe et al., 2001) as an immediate antecedent of green purchasing behavior. *Figure 1-4* depicts a model that includes the willingness to pay for a premium price. The price is also used as an indicator of green product acceptance (Haket, 2016) or monetary sacrifice (J. Lee et al., 2018). Some researches evaluate the influence of price on consumers' purchase intentions in different cultural contexts (Tascioglu, 2014) or joined to other product attributes, such as quality (E. W. Anderson et al., 1994; D'Souza et al., 2007; Rahnama & Rajabpour, 2017) or brand (Rokka & Uusitalo, 2008; Shrum et al., 1995; Suki, 2013). Even more, price is sometimes considered as a barrier for ecofriendly behavior (Nguyen et al., 2017; Pudaruth et al., 2015), since high prices exert a strong influence on consumers' choice

against eco-claims (Hoek et al., 2013) or make the consumer price-sensitive (Govender & Govender, 2016; Oliver, 2007).

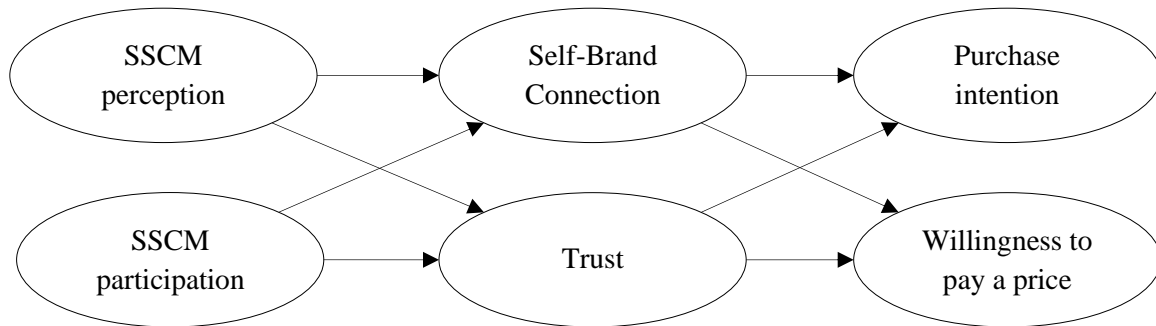


Figure 1-4. Framework of the research model proposed by H. Kim & Lee (2018)

### 1.1.4 Other Paradigms in the Green Domain

Other study fields can offer plausible conjectures around the consumers' pro-environmental consumerism. Those fields consider a similar set of sustainability practices, but from a conventional paradigm in the academic literature. For example, traditional research has pointed out to the role of Corporate Social Responsibility (CSR) in consumers' brand and product evaluations (J. Klein & Dawar, 2004). In this sense, CSR strategies or practices (Málovics et al., 2008; Pakseresht & Mark-Herbert, 2014; Sony et al., 2015) contribute to the greening of production (Thongplew et al., 2017), and enhance product evaluation (Chernev & Blair, 2015; Luchs et al., 2010), purchase intentions (Sen & Bhattacharya, 2001), satisfaction (Hanaysha, 2018) and trust (Casanova Pinto, 2011) of consumers. Thus, CSR usually entails favorable consequences for companies (Armstrong Soule & Reich, 2015), in terms of attracting consumers (Reich et al., 2010) and increasing their purchase intentions through CSR claims (G. Kim, 2015).

Another study field that addresses consumers' green consumerism and has been deeply researched is green marketing, which describes environmentally friendly marketing activities (Alsmadi, 2007) performed to call consumers' attention (DiPietro et al., 2013). Green marketing activities are divided into four sets (Dahlstrom, 2011): market analysis (Getzner & Grabner-Kräuter, 2015), integrated communication (Saremi et al., 2014), supply strategies (Rowlands et al., 2002), and pricing strategies (Li et al., 2017). Hence, companies adopt green marketing strategies to develop a closer relationship with their consumers (De Souza Zapese et al., 2016), because consumers' perception of green marketing is critical to maintain the company's image (Ko et al., 2013).

### **1.1.5 Thesis Proposal**

In synthesis, the research proposed here is based on GSCM and its supporting theories, namely stakeholder theory (T. Donaldson & Preston, 1995; Mitchell et al., 1997), institutional theory (Scott, 1987; Tolbert & Zucker, 1996), and Natural-Resource-Based View of the firm (Hart, 1995). Consequently, this research aims to study the influence of GSCM practices on green consumerism through two different mechanisms described in the literature: protected values (Baron & Spranca, 1997) and the halo effect (Asch, 1946). On the one hand, protected values—known as sacred (Duc et al., 2013; Sheikh et al., 2012) or taboo values (Mcgraw et al., 2016)—are not traded off with other values (Baron, 2017). For example, moralization of the climate change (Salomon et al., 2017) leads to preserve the planet and its environment at all costs (Baron & Spranca, 1997; Rottman et al., 2015). On the other hand, the halo effect arises when there is no explained relationship between the product label and what the product ultimately embodies (Sörqvist, Haga, Langeborg, et al., 2015). Then, “environmentally friendly” products will have a better evaluation than others (Haga, 2018), thus influencing consumers’ purchase intention (Apaolaza et al., 2017). The relevance and importance of both mechanisms will be explained in the following sections.

## **1.2 Justification**

### **1.2.1 Companies’ and Consumers’ Perspectives on the Green Issue**

As discussed previously, the relationship between sustainability business practices and consumers’ willingness to pay a premium—or consumers’ purchase intention (H. Kim & Lee, 2018)—is framed in the classic approach of environmental product differentiation. Under this paradigm, the extra costs that result from enhancing the firm’s environmental performance are charged to the consumer as a premium price in the final product (Reinhardt, 1998, 2000). However, consumers are not always willing to pay more for those “green” or environmental attributes (Usrey et al., 2020). Although consumers manifest attitudes toward ecofriendly products, they do not always materialize those preferences (Alsmadi, 2007; R. H. Donaldson, 2005).

Therefore, if consumers really care about environmental concerns, it would be worthwhile extending the efforts to the entire supply chain, and not only to the product. As O’Rourke (2014) mentions, companies, nongovernmental organizations (NGOs), and governments have started to realize the magnitude of environmental and social impacts from global production and consumption. Indeed, companies are at risk of causing damage to ecosystems under the growing pressure of the

demand for goods and services (De Souza Zapese et al., 2016). Even more, the opposite effect is on the rise: businesses are being affected by climate change, as well as the economic sustainability of both developed and emerging countries (Rajeev et al., 2017).

However, from a business perspective, problems related to environmental issues require the cooperation of different external stakeholders (Qinghua Zhu et al., 2013). That is why some measurements of the environmental impacts of supply chains are required (Luthra & Mangla, 2018). Although O'Rourke (2014) highlights constant debates on how to conduct sustainability assessments, the research agenda in the sustainable area seems to cover supply-chain related aspects (Rajeev et al., 2017). These aspects include strategic issues (Jo & Shin, 2017; Maditati et al., 2018), closed-loop supply chains and circular economy (Geissdoerfer et al., 2018), as well as general studies in the supply chain, considering new trends such as Circular Supply Chain Management (CSCM) (De Angelis et al., 2018; Genovese et al., 2017).

## **1.2.2 GSCM Involved in Consumers' Concerns**

As shown before, the recent research interests of the academic community encompass subjects related to the study of the supply chain. In this research, the focus will be placed on GSCM, the "green" domain of the supply chain management studies. The importance of GSCM (Srivastava, 2007) is mainly driven by the constant deterioration of the environment (Ripple et al., 2017; Steffen et al., 2018). In this sense, GSCM pushes companies to improve their environmental and economic performance (Laari et al., 2016; Qinghua Zhu et al., 2007) through the deployment of some practices, known in the literature as GSCM practices (Green, Zelbst, Meacham, et al., 2012). Recent scientific evidence has shown that consumers do worry about these practices (Bonn et al., 2016; Gillespie & Rogers, 2016; Bowon Kim et al., 2014; H. Kim & Lee, 2018). Thus, it is relevant to know how these GSCM practices can influence consumers' willingness to pay a premium or consumers' purchase intention (H. Kim & Lee, 2018). In other words, it is appropriate to understand through which mechanisms –as the ones already discussed in section *1.1.3 Mechanisms Used to Explain Green Consumerism*– this relationship is operating.

Consumers, as other stakeholders, have become gradually aware of the environmental and social impacts of the companies' operations (Khan et al., 2018; Masoumik et al., 2014; Winston, 2014), thus influencing companies through their consumption habits (Shaw et al., 2006). Consequently, as shown in the previous section, some research has studied consumers' green consumerism from a business and managerial point of view. However, due to the lack of research

on GSCM carried out from a consumer-oriented perspective (Bowon Kim et al., 2014), behavioral and cognitive research offer new perspectives for understanding the motivations of consumers to prefer companies that are immersed in green and sustainable supply chains (Sarkis, 2018). As a result, disciplines such as psychology or consumer marketing play a significant role at the personal level, offering theories that can be potentially used as mechanisms in the relationship between GSCM practices and consumers' willingness to pay a premium or consumers' purchase intention (H. Kim & Lee, 2018).

### 1.2.3 Which Psychological Theory Is Used in the Green Domain?

A continuous trend in research is the use of the Theory of Planned Behavior (TPB) (Ajzen, 1991) to study green consumerism. Different studies use the TPB to research factors that motivate consumers' intention to purchase green products (B. C. Chekima et al., 2016; Moser, 2015; Serafimova, 2016). In this sense, variations and complements to the TPB original model are proposed for comprehending consumers' green purchases. Some of these variations include personal norms (Moser, 2016); eco-labeling and environmental advertising (B. Chekima et al., 2015); expectation and perception (Nam et al., 2017); country of origin and price sensitivity (Hsu et al., 2017); environmental concern (Paul et al., 2016); anticipated regret (Y. J. Kim et al., 2013); and pro-environmental self-identity, ethical obligation and perceived sense of responsibility (Figure 1-5) (Arli et al., 2018).

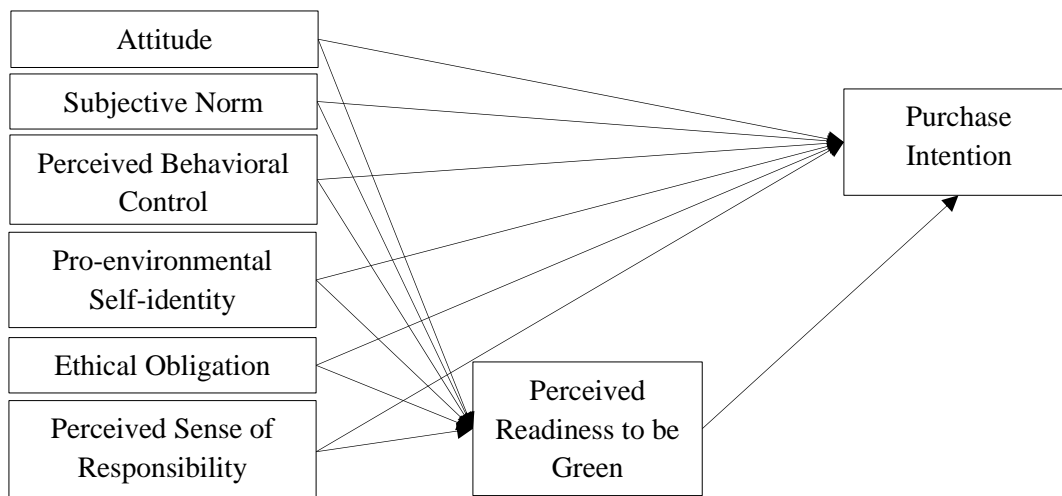


Figure 1-5. Conceptual framework proposed by Arli et al. (2018)

The TPB is a psychological theory that is being extensively used to research consumers' sustainable consumerism. In addition, other mechanisms have been applied (e.g., trust, cognitive dissonance, self-brand connections, perception) to understand this phenomenon. Among those mechanisms, a set of adaptive tools for decision making called heuristics has been employed to study environmental behaviors (Gamma et al., 2018; Macdonald & She, 2015), as well as other daily-basis choices (Kämmer et al., 2014; Reimer & Hoffrage, 2006; Reimer & Katsikopoulos, 2004). These heuristics led people to make efficient cognitive processes (Gigerenzer & Gaissmaier, 2011) under high uncertainty (Russell & Reimer, 2019), serious time constraints (Todd & Gigerenzer, 2007), or in habitual scenarios where the decision-making is unconscious (Bangsa & Schlegelmilch, 2020). Thus, as previous works have used different approaches to study consumers' sustainable consumerism (e.g., TPB, heuristics), this research considers two theories mentioned at the end of the previous section: the protected values (Baron & Spranca, 1997) and the halo effect (Asch, 1946). These theories, and the role they play in the problematization of this study, will be explained in the remainder of this chapter.

#### **1.2.4 Protected Values**

In the classical rational approach of economic decision-making (Persky, 1995), people tend to maximize their utility (Van Houtum & Van Der Velde, 2004), thus buying products that equal their expected value or outmatch it. Accordingly, consumers will buy a product from a company A, which is cheaper than a product from a company B. This situation occurs when other variables (e.g., product quality or performance) remain the same. Now, if information is added about how those products are being produced, the situation could potentially change. In this case, product B (the expensive one) is said to be produced under more ethical standards, thus some people will prefer to buy it, exhibiting a "non-rational" (Bangsa & Schlegelmilch, 2020) behavior according to classical economics (McFadden, 1999). Now, it is important to clarify that these ethical standards are internalized in the utility function of those consumers who prefer B over A. According to Reinhardt (2000), once product B is differentiated under such standards, it does not share the same market niche than product A. Thus, this "non-rational" behavior corresponds to people who prefer product B and belong to a different niche from people who prefer product A.

Furthermore, "non-rational" decisions (Bangsa & Schlegelmilch, 2020) performed by people who prefer product B could be potentially described due to the existence of values that drive people's behavior, following the idea of the protected values (Baron, 2017; Baron & Spranca, 1997). These values are not easily expressed in monetary dimensions (Mcgraw et al., 2016) and dominate

a wide variety of decisions that consumers make. For instance, in a moral stage (Duc et al., 2013; Salomon et al., 2017), internal values (such as self-respect) are stronger predictors of certain behaviors than external values (such as sense of belonging) (Groening & Zhu, 2019; Homer & Kahle, 1988). In a business scenario, protected values serve as a measure of the intrinsic costs of lying while truthfulness is evaluated when economic stakes are high (Gibson et al., 2013).

Hence, in the domain of sustainability, it is important for the literature to understand how consumers behave (Sarkis, 2018), because they can act differently from other research areas (Visschers & Siegrist, 2014). Some consumers feel strong about protecting the environment (Rottman et al., 2015), even if they must incur in some higher costs when buying products (Bowon Kim et al., 2014). Furthermore, it is interesting to see if companies' sustainable efforts are actually paid off by those people who hold protected values (Luchs et al., 2010), embracing the idea of "going green pays" (Raiborn et al., 2013). As a result, a potential research area emerges to comprehend why some consumers are willing to pay more for sustainability or have higher purchase intentions. More research is needed to understand protected values and the specificities of sustainable decisions. Particularly, for the purposes of the present research, the question about why some consumers are willing to pay more—or have higher purchase intentions—for GSCM practices is relevant (Gillespie & Rogers, 2016; Groening & Zhu, 2019; H. Kim & Lee, 2018).

### **1.2.5 Halo Effect**

From this perspective, as some people tend to make sustainable decisions based on protected values that will not be traded off, these same people will be potentially influenced by the halo effect. The halo effect occurs when different attributes of a stimulus influence people's judgments about other unrelated attributes (Thorndike, 1920). This situation has been studied in domains like personal perception (Asch, 1946; Hotter, 2018; Nisbett & Wilson, 1977) e.g., where good-looking people seem to look more intelligent in certain scenarios. In other circumstances, the halo effect has been observed in the food domain, when food is thought to be appropriate for greater consumption if ethical claims are on the package (Schuldt et al., 2012), or in the case that food is perceived environmentally friendlier when it is thought to be healthier and produced in an organic/local way (Lazzarini et al., 2016). In addition, some evidence suggests that people will suffer from halo effects in indoor or built environments with "environmentally friendly" products (Haga, 2018; Holmgren & Sörqvist, 2018; Sörqvist, Haga, Holmgren, et al., 2015).

In a business-setting scenario, for instance, reports of companies' quality internal control could produce a halo effect in customers and employees when evaluating companies' financial performance (Akisik & Gal, 2017). In green markets, the halo effect is presented when consumers intend to garner social status by consuming conspicuous green products, demonstrating their environmental *bona fides* (good faith) through their purchasing decisions (Sexton & Sexton, 2014). Additionally, some studies suggest that the halo effect also exists when there is an increase in consumers' willingness to view products advertisements of companies involved in CSR environmental activities (Dong et al., 2017).

Therefore, it is expected that people will perceive that products manufactured by GSCM practices-oriented companies have better performance, and their perception will be stronger for those who hold protected values toward sustainability and the environment. Consequently, more research is needed to understand why some consumers are willing to pay more (or have higher purchase intentions) for companies' products that claim GSCM efforts displayed along the supply chains: some at the level of suppliers, some at the level of manufacturing, and some others at the level of distribution channels.

### **1.2.6 General Psychological Framework**

Groening, Sarkis, & Zhu (2018) propose a comprehensive overview of the identified individual-level psychological theories used for green theoretical relationships (*Figure 1-6*). This framework is supported on the decision flow of the consumer purchasing process described by Groening & Zhu (2019). In this map, environmental values and knowledge are the first step toward green purchase behavior. In general, values are activated while performing an activity, at the same time that motivate and justify actions (Groening et al., 2018). Actually, values pave the way for other factors in green consumerism (Qingyun Zhu & Sarkis, 2016), and are associated with sustainable choices and purchase decisions regarding products (Bangsa & Schlegelmilch, 2020). That is why companies and society in general should focus on modifying consumers' values (Nash & Lewis, 2006), in order to get more conscious behaviors. Even more, values provide foundations for the next step in the framework—beliefs—and start the process of consumers purchasing behavior (Groening & Zhu, 2019). Moreover, some research highlights the importance of values when consumers evaluate a product (Chen et al., 2018).

In addition to this approach of consumers' values, the halo effect could be related to the prosocial behavior and social judgment theory (Groening et al., 2018). This theory encompasses

companies' prosocial behavior and individual consumerism. Examples of those behaviors are found in studies where the firms' prosocial behavior could potentially have a halo effect on consumers, increasing the perceived product performance (Chernev & Blair, 2015) or brand attitudes (Olsen et al., 2014). Consequently, future research could focus on determining whether the halo effect exists and if it is able to benefit companies (Groening et al., 2018).

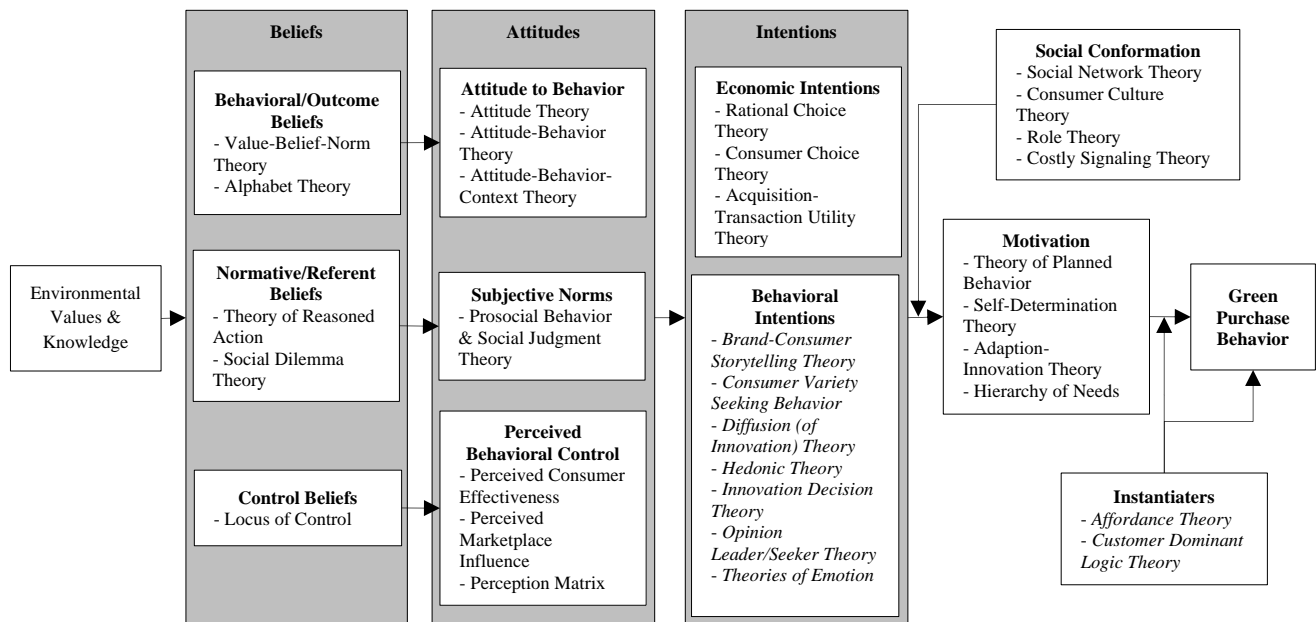


Figure 1-6. General framework proposed by Groening et al. (2018). Note: Theories not applied in consumerism research are italicized.

## 1.2.7 Thesis Contribution

It is interesting how these two theories (protected values and halo effect) can join to explain the consumers' sustainability-oriented consumerism from a GSCM and psychological perspective (Sarkis, 2018), rather than from a more traditional green marketing or CSR perspective. To the best of the authors' knowledge, little research has been carried out using both psychological approaches to explain diverse phenomena (Sheehan & Lee, 2014). Considering both approaches, few research focuses on the sustainable domain (Dahlinger & Wortmann, 2016), and even less on the consumers' response to environmentally-differentiated products along the companies' supply chains, which is the main focus of the emerging research area of GSCM. The present study aims to fill this knowledge gap that has been practically untapped in the literature, exploring an innovative approach of a business and management problem from supply chain management and psychological perspectives.

## **2. Problem Identification**

This chapter is divided into four parts. The first part deals with green consumerism in Colombia and presents the research approximations in the country to the thesis' core topics. The second part states the research question that intends to be solved with this study. In the third part, five sets of hypotheses will be portrayed in two models, which encompass the three theories involved in this work: GSCM, Protected Values and the Halo Effect. In the last part of this chapter, the general and the four specific objectives of this thesis are listed.

### **2.1 Green Consumerism in Colombia**

In the Colombian context, the study of GSCM has advanced considerably in the last decade (Chacón-Vargas et al., 2018; Chacón-Vargas & Moreno-Mantilla, 2017; Leguízamo-Díaz & Moreno-Mantilla, 2014; Quiroga-Calderón et al., 2018; Sarache-Castro et al., 2015), showing efforts for tackling environmental issues from a SCM perspective. However, studies on green consumerism using GSCM as a framework have received little attention in emerging economies, or even in the GSCM area itself (Jayaram & Avittathur, 2015; Jayaraman et al., 2012; Narula & Desore, 2016). Since the tendency of companies to become greener is growing fast in emerging economies (Jayaram & Avittathur, 2015; Jayaraman et al., 2012; Luthra & Mangla, 2018; Rajeev et al., 2017; Scur & Barbosa, 2017), it is important to understand the factors that influence consumers' willingness to pay more or consumers' purchase intentions (Narula & Desore, 2016). Thus, it is necessary to look into the organizations' deployment of GSCM practices and their relationship with consumers' willingness to pay a premium/purchase intention, especially in the context of emerging economies where more research is required (Chernev & Blair, 2015; Jayaraman et al., 2012; Sörqvist, Haga, Holmgren, et al., 2015).

For example, previous research has tried to understand socially responsible consumption from a CSR perspective in Colombia (Villa Castaño et al., 2016), including a characterization of Colombian consumers (Tabares-Osorio & Zuluaga-Orozco, 2014). Other researches have studied the impact of neuromarketing (Quintero-Arango & Martínez-Gómez, 2018), green marketing (Salcedo-Pérez & Serna, 2018) or cause-related marketing (Mejía-Restrepo, 2018) on Colombian consumers. Although some studies focus on the relationship of pro-environmental attitudes and

sustainable consumption (Crissien-Borrero et al., 2016), or report inconsistencies between attitudes and actual behavior (Muñetón-Santa et al., 2017), there are few studies about consumers' willingness to pay or consumers' purchase intention in emerging economies as the Colombian one (Jayaram & Avittathur, 2015; Jayaraman et al., 2012).

## 2.2 Research Question

An unexploited area of research in the mainstream GSCM literature refers to consumers' responses to environmentally differentiated products along the companies' supply chains. Therefore, due to the lack of research on this area and the potential contribution of the two psychological theories explained in the section *1.2 Justification* (i.e., protected values and the halo effect), it is necessary to understand the influence of GSCM practices on consumers' willingness to pay a premium, and consumers' purchase intention, in a context as the Colombian one. More importantly, there could be a potential contribution to the GSCM literature, since few studies have explored the relationship of GSCM practices and consumers' willingness to pay a premium/consumers' purchase intention (Bowon Kim et al., 2014).

Besides the added value to the fields involved when studying this relationship in a context such as the Colombian economy, it is relevant for the theory to validate emerging research areas in diverse contexts. Likewise, it is important to understand phenomena that are intensively researched nowadays, using different approaches such as psychological theories. In conclusion, the following research question arises: *what is the influence of companies' GSCM practices on consumers' willingness to pay a premium and consumers' purchase intention, using the psychological approaches of protected values and the halo effect in the context of an emerging economy as the Colombian one?*

## 2.3 Hypotheses and Models

Firstly, this study was designed to test the effects of companies' GSCM practices, relative to companies' traditional practices, on consumers' willingness to pay a premium and consumers' purchase intention through consumers' perceived product performance (i.e., mediation effect that represents the halo effect). Secondly, this study tests if consumers' moral orientation toward the environment moderates the effect of companies' GSCM on consumers' willingness to pay a premium, purchase intention and perceived product performance (i.e., moderation effect that represents the protected values).

As previous research suggests (Bowon Kim et al., 2014; H. Kim & Lee, 2018), the efforts that companies make in terms GSCM practices could be compensated by consumers, when they actually buy those companies' products. According to this statement, consumers will be willing to pay a premium price, or will have a higher purchase intention, if they can perceive the deployment of the companies' GSCM practices. In this sense, the first set of proposed hypotheses will be:

- H<sub>1a</sub>: Companies' GSCM practices positively influence consumers' willingness to pay a premium.
- H<sub>1b</sub>: Companies' GSCM practices positively influence consumers' purchase intention.

Beyond the relationships described in H<sub>1a</sub> and H<sub>1b</sub>, it would be expected that consumers perceive a higher performance in products from socially responsible companies (Bacig & Young, 2019; Chernev & Blair, 2015), or in eco-friendly products (Sörqvist, Haga, Holmgren, et al., 2015), organic or all-natural products (Amos et al., 2019; Apaolaza et al., 2018), fair trade-logo products (Tang et al., 2016) or GSCM practices —for the purpose of this research. Hence, the second set of proposed hypotheses will be:

- H<sub>2a</sub>: Companies' GSCM practices positively influence consumers' perceived product performance (consumers' willingness to pay a premium situation).
- H<sub>2b</sub>: Companies' GSCM practices positively influence consumers' perceived product performance (consumers' purchase intention situation).

According to what has been said, the consumers' perceived product performance would mediate the effect of companies' GSCM practices on consumers' willingness to pay a premium/consumers' purchase intention. A similar pathway has been described by Hahnel et al. (2015) (i.e., ecological motivation as the independent variable, perceived matching as the mediator, and purchase intention as the dependent variable). In this way, consumers will be willing to pay more, or will have higher purchase intentions, for those products that have "better" performance. In fact, the halo effect is immersed in this mediation relationship. Thus, the third set of proposed hypotheses will be:

- H<sub>3a</sub>: Consumers' perceived product performance positively influences consumers' willingness to pay a premium.
- H<sub>3b</sub>: Consumers' perceived product performance positively influences consumers' purchase intention.

So far, the already described hypotheses evaluate the halo effect: companies' GSCM practices will influence the perceived performance of the companies' products (Chernev & Blair, 2015), and this perceived performance will influence consumers' willingness to pay a premium and consumers' purchase intention. At the same time, it is expected that consumers' concerns about the environment are expressed as protected values (Rottman et al., 2015). In this sense, consumers' moral orientation toward the environment (Sörqvist, Haga, Langeborg, et al., 2015) can moderate the effect of companies' GSCM practices on consumers' perceived product performance, willingness to pay a premium, and purchase intention, as other models suggest (Apaolaza et al., 2018; Herédia-Colaço & Coelho Do Vale, 2016; Pancer et al., 2017).

In other words, protected values (consumers' moral orientation toward the environment) would moderate (Byungdoo Kim & Schuldt, 2018) the effect of companies' GSCM practices on consumers' perceived product performance (Chernev & Blair, 2015), and the effect of companies' GSCM practices on consumers' willingness to pay a premium/ consumers' purchase intention (B. Kumar et al., 2017; Pancer et al., 2017). In both relationships, the moderator aims to reinforce the effect of the independent variable on the dependent one. Consequently, the fourth and the fifth sets of hypotheses will be:

- H<sub>4a</sub>: Consumers' moral orientation toward the environment moderates —will make stronger— the influence of companies' GSCM practices on consumers' perceived product performance (consumers' willingness to pay a premium situation).
- H<sub>4b</sub>: Consumers' moral orientation toward the environment moderates —will make stronger— the influence of companies' GSCM practices on consumers' perceived product performance (consumers' purchase intention situation).
- H<sub>5a</sub>: Consumers' moral orientation toward the environment moderates —will make stronger— the influence of companies' GSCM practices on consumers' willingness to pay a premium.
- H<sub>5b</sub>: Consumers' moral orientation toward the environment moderates —will make stronger— the influence of companies' GSCM practices on consumers' purchase intention.

As shown before, since the protected values and the halo effect have been little explored in the GSCM research area, this study will be an innovative approach for understanding the relationship between GSCM practices and consumers' willingness to pay a premium/consumers' purchase intention. All the hypotheses described above are depicted in *Figure 2-1* and *Figure 2-2*.

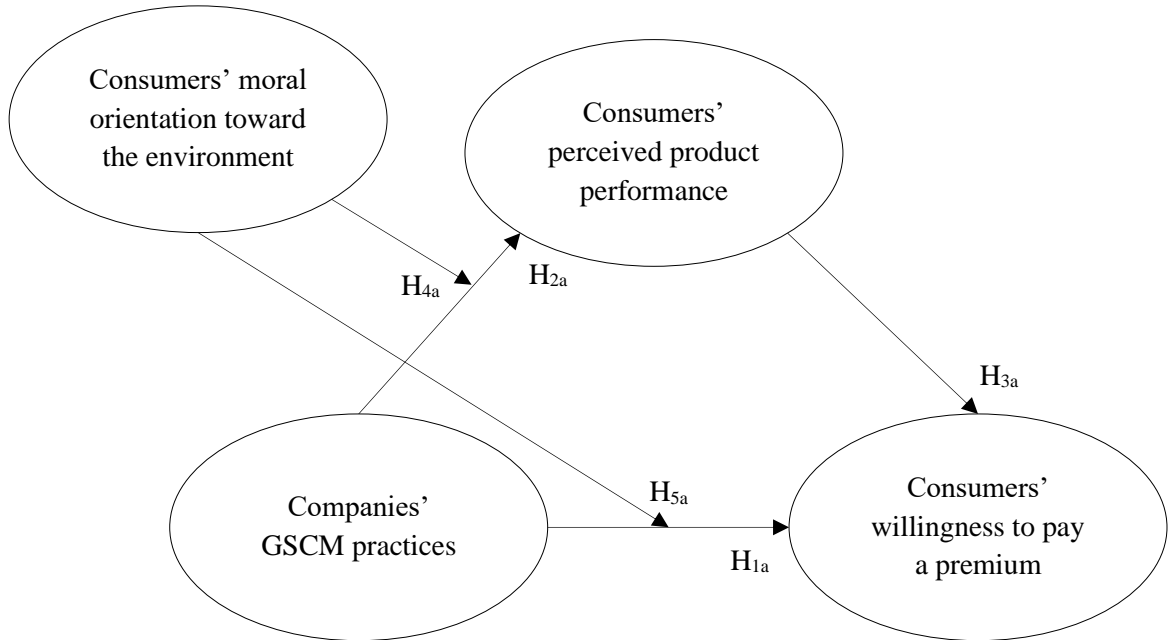


Figure 2-1. Proposed model with consumers' willingness to pay a premium as the dependent variable

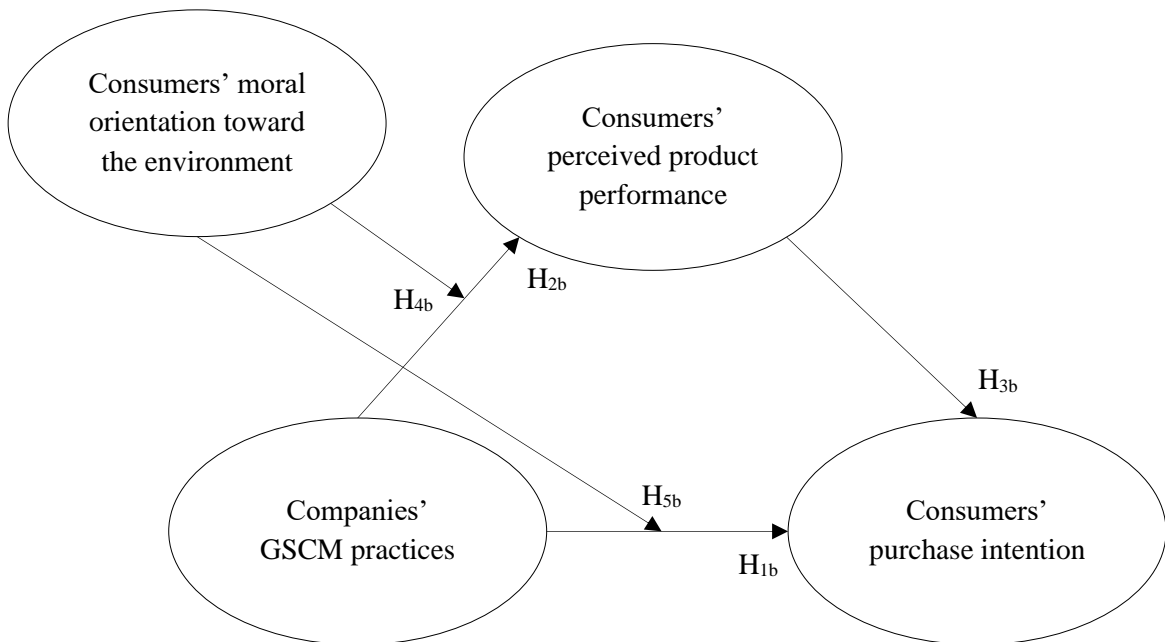


Figure 2-2. Proposed model with consumers' purchase intention as the dependent variable

## **2.4 Research Objectives**

### **2.4.1 General Objective**

- Evaluate the relationship between GSCM practices and consumers' willingness to pay a premium, and between GSCM practices and consumers' purchase intention based upon the role of protected values and the halo effect.

### **2.4.2 Specific Objectives**

- Propose an analytical framework that describes the role of protected values and the halo effect in the relationship between companies' GSCM practices and consumers' willingness to pay/consumers' purchase intention.
- Develop an instrument for operationalizing the constructs in the proposed model.
- Design one experiment that assesses the role of protected values and the halo effect to explain the relationship of GSCM practices and consumers' willingness to pay a premium/consumers' purchase intention.
- Validate the model using statistical techniques.

## **3. Methodology**

This chapter is divided into six parts. The first part describes the considerations and the procedures carried out to collect data in order to set the conditions by using a GSCM practices survey based on previous works. The second part explains why an experimental approach was used in this study, and the procedures to collect data for the experiment itself. In the third part, all the sample considerations and justifications are exposed. The fourth part of this chapter describes the pre-test conducted before the main study, and the adjustments made to the experiment instrument considering the pre-test findings. In the fifth section, all the instruments and measures used in this thesis are detailed. Finally, the last part of this chapter reports the analyses used to treat the data.

### **3.1 Experimental Conditions: Survey of GSCM Practices**

Environmental actions of companies are not reduced to intra-organizational practices (Sajjad, 2019). Firms seek ways to develop intra- and inter- activities because considerable environmental impacts come from supply chain activities (Sarkis, 2014). That is why the literature in GSCM suggests that practices are divided into intra-organizational practices, the ones that the focal company deploys internally (C. Lee & Lim, 2020), and inter-organizational practices, the ones the focal company deploys together with stakeholders of its supply chain (Qinghua Zhu et al., 2008, 2010). In fact, recent articles argue that internal green practices are deployed before external green practices (Green, Zelbst, Meacham, et al., 2012; Qinghua Zhu et al., 2013). In this sense, internal GSCM practices facilitate the adoption of external GSCM practices (Laari et al., 2016). Considering this evidence, it is important to consider representing these stages (intra and inter) in the conditions of the experiment. Therefore, the specific practices that were going to be included in the experiment were chosen through an analysis of companies in the Colombian (local) context, taking into account what the literature says about the deployment of GSCM practices.

The conditions for the experiment came from an analysis of Colombian companies. Specifically, the companies are Small and Medium-sized Enterprises (SMEs), which together with

micro companies (i.e., less than 10 employees), represented 67% of the total employment, contributed to 28% of the GDP and accounted for 94% of all companies in Colombia in 2016 (Moscoso-Duran & Mancha-Navarro, 2018). These types of companies are important to study because the ones located in developing countries are mainly distinguished by showing comparatively more reluctance to adopt GSCM practices (Tumpa et al., 2019), facing capital constraints to adopt green investments (Fang & Xu, 2020), and lacking information or knowhow to handle environmental issues (Laari et al., 2016). Thus, SMEs have a potentially huge influence on the environment, and can be a bottleneck for greening local and international supply chains (Laari et al., 2016; S. Lee, 2008).

In order to get the information required for the experimental conditions, a data collection procedure was performed following a web survey strategy. The survey intended to obtain a classification (i.e., clusters) that represented different real states of the Colombian SMEs. Consequently, the participants of the experiment encountered examples of daily-basis products information. A population of 1,357 SMEs was taken from the Colombian Exporting SMEs Directory 2017, because companies that export have better environmental performance than the ones that do not (Trujillo Gallego, 2018), which would guarantee the deployment of GSCM practices. The email communication sent to the SMEs population can be found in the *Appendix A: Email Communication to Participate in the Data Collection of GSCM Practices*.

The questionnaire assessed the implementation of GSCM practices, considering four (Quiroga-Calderón et al., 2018) out of the five common practices (Sarkis & Dou, 2018): internal environmental management with 6 items (Green, Zelbst, Meacham, et al., 2012; Scur & Barbosa, 2017; Qinghua Zhu et al., 2013); eco-design with 5 items (Bowon Kim et al., 2014; Macdonald & She, 2015; Magnier & Schoormans, 2015); green purchasing/supply collaboration with 7 items (Chacón-Vargas et al., 2018; Green, Zelbst, Meacham, et al., 2012; Scur & Barbosa, 2017); and collaboration with customers with 7 items (Green, Zelbst, Bhadauria, et al., 2012; Trujillo Gallego, 2018; Vachon & Klassen, 2008). The survey instrument used is based on previous works of the literature (Quiroga-Calderón, 2018; Quiroga-Calderón et al., 2018), and can be found in the *Appendix B: Survey Instrument of GSCM Practices*. The appendix shows the specific works in the literature where the items were taken from. The fifth dimension of GSCM, investment recovery (Green, Zelbst, Meacham, et al., 2012; Masoumik et al., 2014; Qinghua Zhu et al., 2013), is immersed in the eco-design construct in the Colombian scenario and was not considered. In fact, the

construct of investment recovery (i.e., reverse logistics) is the weakest one in previous models that encompass other GSCM constructs in the Colombian case (Chacón-Vargas, 2017, p. 450).

The GSCM practices included in this analysis are briefly described here. Firstly, internal environmental management in the Colombian case (Chacón-Vargas et al., 2018) encompasses three categories (Sarkis & Dou, 2018): pollutant emissions reduction (e.g., generation of hazardous and non-hazardous wastes), resource consumption reduction (e.g., materials and energy) and environmental management systems (e.g., ISO 14001). Secondly, eco-design looks for minimum environmental criteria in the products (Scur & Barbosa, 2017), reducing waste, materials and energy through a better design, and facilitating recovery, recycle and reuse (Green, Zelbst, Meacham, et al., 2012; Sarkis & Dou, 2018). Thirdly, green purchasing focuses on cooperation with suppliers, aiming to reduce environmental impacts (Green, Zelbst, Meacham, et al., 2012). This practice covers the supplier selection based on specific criteria, while looking for the implementation of environmental audits, training programs and awareness seminars. Finally, collaboration with customers involves joint work between the company and its customers (Chacón-Vargas et al., 2018) to: reduce environmental impacts of the products during the phases of packaging, packing and usage; use less energy during the products transportation; and facilitate the collection of post-consumer wastes. In other words, collaboration with customers covers green packaging, cleaner production, and eco-design (Sarkis & Dou, 2018).

With a final sample of 56 SMEs, some statistical procedures were followed to get the conditions from the GSCM practices survey to the experiment. Firstly, missing and atypical values were evaluated. Secondly, an Exploratory Factor Analysis (EFA) and a Confirmatory Factor Analysis (CFA) (Hair et al., 2014) were performed in SPSS and LISREL, respectively. These procedures validated the factors proposed. Afterward, a cluster analysis classified the companies depending on the frequency of adoption of GSCM practices (Moreno-Mantilla et al., 2018). That classification was verified with ANOVA and Tukey post hoc tests. Finally, a discriminant analysis validated the classification of the companies, and provided the specific items that were included in the experimental conditions. The details of the analyses described in this paragraph are explained next.

Firstly, the data were organized, together with the search for missing, atypical values and outliers (Hair et al., 2014). None of these values were found. Afterward, an Exploratory Factor Analysis (EFA) was performed in SPSS 26 to accomplish construct validity (Goodwin, 1999), and to have a more parsimonious explanation of the theoretical constructs (Thompson, 2004). The details

of the EFA can be found in *Table 3-1*. This structure was obtained after excluding two items from the GSCM practices survey: the second item of internal environmental management (i.e., IEM2) and the first item of green purchasing (i.e., GPURC1).

Table 3-1. Exploratory Factor Analysis (EFA) of the GSCM practices survey

Item	Factor				Communality
	1	2	3	4	
<b>ED2</b>	<b>0.849</b>	0.223	0.220	0.094	0.828
<b>ED3</b>	<b>0.842</b>	0.278	0.249	0.081	0.855
<b>ED4</b>	<b>0.834</b>	0.190	0.206	0.180	0.806
<b>ED5</b>	<b>0.833</b>	0.078	0.182	0.151	0.755
<b>ED1</b>	<b>0.812</b>	0.159	0.210	0.227	0.780
<b>CLIEN3</b>	0.167	<b>0.809</b>	0.276	0.231	0.811
<b>CLIEN5</b>	0.277	<b>0.771</b>	0.087	0.174	0.709
<b>CLIEN6</b>	-0.024	<b>0.727</b>	0.316	0.240	0.687
<b>CLIEN1</b>	0.267	<b>0.683</b>	0.184	0.356	0.699
<b>CLIEN7</b>	0.070	<b>0.663</b>	0.227	0.146	0.517
<b>CLIEN2</b>	0.244	<b>0.653</b>	0.416	0.192	0.695
<b>CLIEN4</b>	0.356	<b>0.619</b>	0.037	0.212	0.556
<b>IEM6</b>	0.214	0.271	<b>0.845</b>	0.231	0.886
<b>IEM5</b>	0.288	0.232	<b>0.832</b>	0.213	0.874
<b>IEM4</b>	0.206	0.274	<b>0.827</b>	0.252	0.866
<b>IEM1</b>	0.397	0.268	<b>0.690</b>	0.056	0.709
<b>IEM3</b>	0.173	0.164	<b>0.640</b>	0.378	0.609
<b>GPURC5</b>	0.008	0.183	0.222	<b>0.843</b>	0.793
<b>GPURC6</b>	0.086	0.291	0.083	<b>0.831</b>	0.790
<b>GPURC4</b>	0.209	0.404	0.117	<b>0.759</b>	0.796
<b>GPURC7</b>	0.364	0.170	0.330	<b>0.713</b>	0.778
<b>GPURC3</b>	0.233	0.178	0.419	<b>0.624</b>	0.651
<b>GPURC2</b>	0.361	0.380	0.405	<b>0.612</b>	0.813
<b>Cronbach's alpha (<math>\alpha</math>)</b>	0.939	0.902	0.926	0.923	
<b>Eigenvalues</b>	11.647	2.418	1.648	1.552	
<b>Variance Explained</b>	50.639	10.511	7.166	6.748	

Notes: Extraction Method: Principal Component Analysis.  
Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 6 iterations.  
Kaiser – Meyer – Olkin measure of sample adequacy: 0.856.  
Bartlett's test of sphericity  $\chi^2$  (253) = 1183.918,  $p < 0.001$ .  
Total variance explained = 75.064%.

Loadings larger than 0.60 are in bold.

Subsequently, a Confirmatory Factor Analysis (CFA) was performed in LISREL to better evaluate construct validity than in the EFA, and to examine the measurement model for the proposed constructs (J. C. Anderson & Gerbing, 1988). Previous works encourage the use of CFA due to its robustness (Curran et al., 1996) and the pre-defined constraints of the factorial structure that researchers impose to the data, in order to see how the data fit the hypothesized model (Carter, 2016). Therefore, the CFA confirmed the validity of the constructs. All the details of this analysis are described in *Table 3-2* and *Table 3-3*. This structure was obtained after excluding five items from the EFA: the third item of internal environmental management (i.e., IEM3), the sixth and the seventh item of green purchasing (i.e., GPURC6 and GPURC7), and the fourth and the seventh item of customer/client collaboration (i.e., CLIEN4 and CLIEN7).

Table 3-2. Factors loading of the Confirmatory Factory Analysis (CFA) of the GSCM practices survey

Items	Completely Standardized Solution			
	1	2	3	4
<b>IEM1</b>	0.743			
<b>IEM4</b>	0.932			
<b>IEM5</b>	0.925			
<b>IEM6</b>	0.939			
<b>ED1</b>		0.812		
<b>ED2</b>		0.941		
<b>ED3</b>		0.955		
<b>ED4</b>		0.847		
<b>ED5</b>		0.756		
<b>GPURC2</b>			0.915	
<b>GPURC3</b>			0.925	
<b>GPURC4</b>			0.751	
<b>GPURC5</b>			0.813	
<b>CLIEN1</b>				0.829
<b>CLIEN2</b>				0.835
<b>CLIEN3</b>				0.904
<b>CLIEN5</b>				0.772
<b>CLIEN6</b>				0.700
<b>Cronbach's Alpha (<math>\alpha</math>)</b>	0.934	0.940	0.885	0.902
<b>Average Variance Extracted (AVE)</b>	0.789	0.749	0.729	0.657
<b>Composite Reliability (CR)</b>	0.937	0.936	0.914	0.905

Table 3-3. Goodness-of-fit statistics of the Confirmatory Factory Analysis (CFA) of the GSCM practices survey

<b>Model fit indices</b>	<b>Model</b>
<b>Chi-square (<math>\chi^2</math>)</b>	
Chi-square ( $\chi^2$ )	142.240
Degrees of freedom (df)	131
p-value	0.237
<b>Absolute Fit Measures</b>	
Goodness-of-Fit Index (GFI)	0.747
Root Mean Square Error of Approximation (RMSEA)	0.0395
90 percent confidence interval for RMSEA	(0.0; 0.0784)
Root Mean Square Residual (RMSR)	0.113
Standardized Root Mean Residual (SRMR)	0.066
Normed chi-square ( $\chi^2/df$ )	1.085
<b>Incremental Fit Indices</b>	
Normed Fit Index (NFI)	0.943
Non-Normed Fit Index (NNFI)	0.994
Comparative Fit Index (CFI)	0.995
Relative Fit Index (RFI)	0.933
<b>Parsimony Fit Indices</b>	
Adjusted Goodness-of-Fit Index (AGFI)	0.670
Parsimony Normed Fit Index (PNFI)	0.807

After the structure validation of the GSCM practices measurement model, a cluster analysis based on previous works (Moreno-Mantilla et al., 2018) was performed. For this analysis, different combinations of items (i.e., two per construct) were evaluated. At the end, eight items were selected (IEM1 and IEM4, ED2 and ED4, GPURC3 and GPURC4, CLIEN3 and CLIEN5) following two considerations: (1) those items should have had one of the highest factor loading in the CFA, in order to assure representability of each construct; and (2) those items should have had one of the smallest inter-factor correlation (i.e., correlation with the items of the rest of the factors), in order to minimize the correlations among the constructs.

Then, the objective of the cluster analysis was to form homogeneous groups depending on predetermined criteria. In this case, the criteria were the companies' deployment of GSCM practices. Based on previous studies (V. Kumar et al., 2014; Moreno-Mantilla et al., 2018; Shang et al., 2010),

the items chosen were normalized (i.e., Zscores) and a K-means clustering procedure (Hair et al., 2014) was employed. This analysis provided evidence of three clusters: cluster 1 (laggard companies), cluster 2 (follower companies) and cluster 3 (leader companies). The values of each item per cluster can be seen in *Figure 3-1*.

To see how the clusters differed, one-way ANOVA tests (*Table 3-4*) were performed. Statistically significant differences among the clusters were found, and the Tukey post hoc tests revealed them. For six out of the eight items (except for both eco-design items), the cluster 3 was statistically significantly different ( $p < 0.01$ ) from the other two clusters. For these same six items, the clusters 1 and 2 were not statistically significantly different: the smallest  $p = 0.102$  for the first item of internal environmental management (i.e., IEM1), and the biggest  $p = 0.972$  for the third item of green purchasing (i.e., GPURC3). Now, for both items of eco-design, the clusters 2 and 3 were not statistically significantly different:  $p = 0.186$  for the second item (i.e., ED2), and  $p = 0.292$  for the fourth item (i.e., ED4). For these two items, the cluster 1 was statistically significantly different from the other two clusters ( $p < 0.001$ ). These differences described in this paragraph can be seen clearer in *Figure 3-1*.

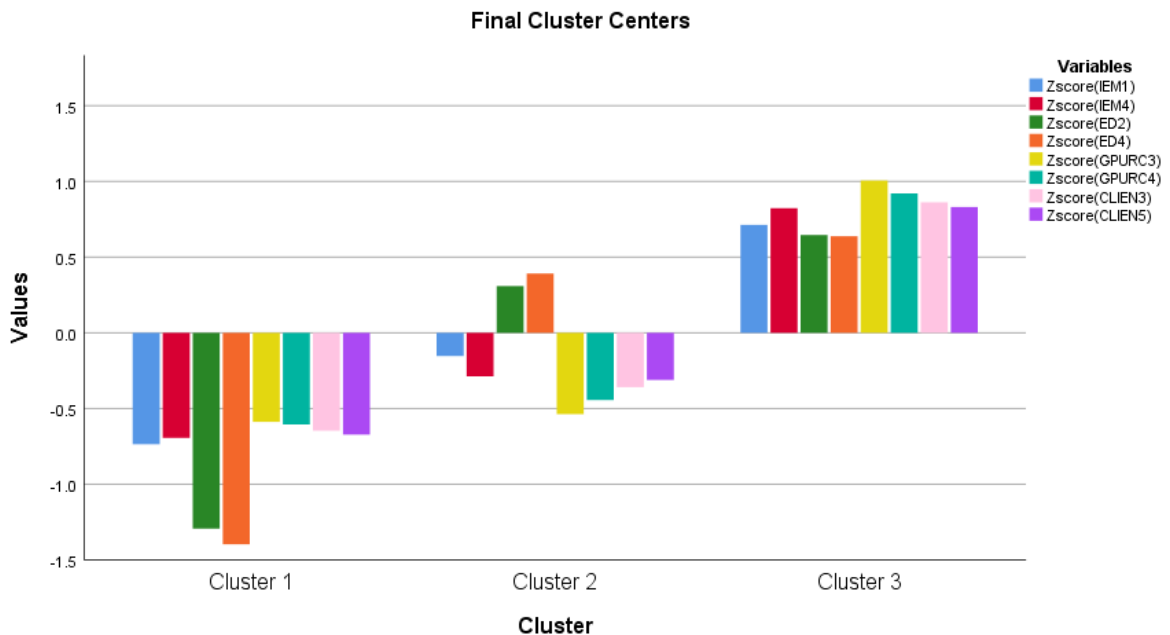


Figure 3-1. Bar chart of the final cluster centers of the K-mean clustering of the GSCM practices survey

*Notes:* Convergence achieved after 4 iterations.

Number of cases in each cluster: Cluster 1 (15), Cluster 2 (21), Cluster 3 (20).

Table 3-4. One-way ANOVA tests of the items used in the cluster analysis of the GSCM practices survey

Normalized Item	Cluster	Mean	Std. Deviation	df	F	p-value
<b>Zscore(IEM1)</b>	1	-0.7363511	0.94075775	2	13.759	0.000
	2	-0.1531864	0.82387456			
	3	0.7131090	0.73405115			
<b>Zscore(IEM4)</b>	1	-0.6934883	0.78127294	2	18.320	0.000
	2	-0.2878793	0.91035014			
	3	0.8223894	0.62403974			
<b>Zscore(ED2)</b>	1	-1.2932745	0.41517656	2	48.003	0.000
	2	0.3083038	0.72060348			
	3	0.6462369	0.59667972			
<b>Zscore(ED4)</b>	1	-1.3972402	0.74264936	2	74.859	0.000
	2	0.3909329	0.38448962			
	3	0.6374506	0.44137897			
<b>Zscore(GPURC3)</b>	1	-0.5884854	0.35026696	2	35.495	0.000
	2	-0.5374712	0.44179608			
	3	1.0057089	0.97031176			
<b>Zscore(GPURC4)</b>	1	-0.6056722	0.35231582	2	24.839	0.000
	2	-0.4444039	0.52310837			
	3	0.9208783	1.05578788			
<b>Zscore(CLIEN3)</b>	1	-0.6458497	0.50163133	2	20.202	0.000
	2	-0.3588054	0.78936283			
	3	0.8611329	0.89512881			
<b>Zscore(CLIEN5)</b>	1	-0.6718720	0.84292044	2	18.487	0.000
	2	-0.3111354	0.83967218			
	3	0.8305961	0.66292479			

Consequently, the cluster analysis suggested that the laggards (cluster 1) did not deploy any GSCM practice, the followers (cluster 2) deployed just one practice (i.e., eco-design), and the leaders deployed all four GSCM practices. If this was the scenario, there should have been more GSCM practices that differentiated the clusters. It seemed that eco-design is one of those practices that distinguished between laggards and the other two clusters. However, the whole analyses described here had the intention to set some GSCM practices to operationalize the conditions for the experiment. Thus, at least one more practice should have been chosen for the conditions operationalization, in order to differentiate the cluster 3 from the other two clusters. Nevertheless, the analyses described so far did not clearly recognized another GSCM practice. Considering this necessity, a discriminant analysis was performed.

Following previous works (Klecka, 1980; Moreno-Mantilla et al., 2018; Shang et al., 2010), two canonical functions with a linear combination of the eight items used in the cluster analysis explained 100% of the variance. The structure matrix resulted from the discriminant analysis can be seen in *Table 3-5*. As values exceeding  $\pm 0.40$  are considered for interpretation purposes (Hair et al., 2014), four items were considered for setting the conditions in the experiment: the two items of eco-design (i.e., ED2 and ED4) as expected, and the two items of green purchasing (i.e., GPURC3 and GPURC4).

Table 3-5. Structure matrix of the items used in the discriminant analysis of the GSCM practices survey

Items	Function	
	1	2
Zscore(ED4)	<b>0.665</b>	<b>-0.541</b>
Zscore(ED2)	<b>0.544</b>	-0.367
Zscore(CLIEN3)	0.337	0.324
Zscore(IEM4)	0.331	0.254
Zscore(CLIEN5)	0.329	0.275
Zscore(IEM1)	0.300	0.126
Zscore(GPURC3)	<b>0.411</b>	<b>0.562</b>
Zscore(GPURC4)	0.358	<b>0.422</b>

*Notes:* Values larger than 0.40 are in bold.

In this way, the conditions comprised two GSCM practices, eco-design and green purchasing. These practices differed in the three clusters as follows: the laggards (cluster 1) did not deploy neither eco-design nor green purchasing, the followers (cluster 2) deployed eco-design but not green purchasing, and the leaders (cluster 3) deployed both practices. It is worth mentioning that this assignation of the GSCM practices through the conditions allowed the experiment to create a similar environment to what consumers could face in real life. Finally, the conditions were created based on these three clusters. Then, each condition was established to look very similar, although differing slightly either in the images or in the descriptions, which were basically the same but with variations in some connectors or the affirmation/negation of some verbs. To see the details of the conditions, look at the section *10.3 Conditions – Absolute Measures*, in the *Appendix D: Experimental Stimuli and Instruments*.

After these analyses, three conditions emerged. The first condition depicted a product with no GSCM practices, which is the baseline for the other two conditions. This product, the non-green product, portrays a typical scenario where companies do not care about the environment, have

serious issues implementing GSCM practices or do not communicate them. The second condition depicted a product with the deployment of just internally oriented GSCM practices (in this study, eco-design). This product, the “partially” green product, represents those companies that are trying to green their internal operations but are still struggling with the deployment of more advanced GSCM practices, which involve more stakeholders in the supply chain (e.g., customer, suppliers). Finally, the third condition depicted a product with the deployment of both internally (i.e., eco-design) and externally (i.e., green purchasing) oriented GSCM practices. This product, the “totally” green product, does express the efforts of the companies that are greening their operations internally, and at the same time work with other stakeholders to reduce the environmental impacts throughout their supply chain. It is worth mentioning that, strictly speaking, “totally” and “partially” green products do not exist (Zink & Geyer, 2016). However, for the purposes of nomenclature in this thesis, these two labels will be referring to products with internally and externally oriented GSCM practices and to products with just internally oriented GSCM practices, respectively.

### **3.2 Experimental Study and Procedure**

This study used a scenario-based behavioral experiment (Davis-Sramek et al., 2018). Previous works point out the importance of using experimental approaches in the supply chain (Eckerd, 2016) and in the green domain (Kao & Du, 2020). This importance is based on the facts that behavioral research is useful to test and build theory (Tokar, 2010), represents an effective and underused method for gaining insights into supply chain management theory (Knemeyer & Naylor, 2011), and balances theoretical and practical studies in this area of knowledge (Stentoft & Rajkumar, 2018). Additionally, experiments use the power of random assignment, offer more control and manipulation in the variables involved, and potentially increase internal validity (Davis-Sramek et al., 2018; Knemeyer & Naylor, 2011). Furthermore, experimental designs are less likely to be affected by social desirability bias, since participants are not told the goal of the research and are unlikely to guess what the experiment is about (Mohr et al., 2001; Tascioglu, 2014).

The proposed experiment for this study had a within-subject factorial design (Nam et al., 2017; Sörqvist, Haga, Holmgren, et al., 2015). The design comprised the conditions described in the previous section, *3.1 Experimental Conditions: Survey of GSCM Practices*: no GSCM practices, internally-oriented GSCM practices and internally-oriented + externally-oriented GSCM practices. After the introduction and a paragraph explaining the dynamic of the “survey” (for the participants, the experiment was referred as a survey), the scenarios of the companies' GSCM practices were

presented, describing a similar product but varying the three conditions (three rounds). In every product exposure (each round), four sets of sentences, which could be questions or affirmations, were randomly posed to the participants. Two sets of sentences measured the likelihood to purchase the product (Pancer et al., 2017), i.e., consumer's willingness to pay a premium (WPP) and consumer's purchase intention (PI). A third set of sentences asked for the perceived product performance (PPP) (Chernev & Blair, 2015), and the last set of sentences asked for the perceived environmental friendliness (PEF) of the product (Irwin & Spira, 1997) as a manipulation check.

At the end of the three rounds, a paired comparison task was administered (Kämmer et al., 2014; Reimer & Katsikopoulos, 2004). This paired comparison presented two out of the three conditions at once, and four questions related to those conditions were asked to participants. Each question represented one of the four sets mentioned before, i.e., consumer's willingness to pay a premium, consumer's purchase intention, perceived product performance and perceived environmental friendliness of the product. Thus, the participant had to choose one out of the two conditions in every question. The paired comparison task showed three combinations to every participant, i.e., condition 1 vs. condition 2, condition 1 vs. condition 3, condition 2 vs. condition 3. Those combinations were randomly and evenly presented, varying the position of each condition among the participants.

The products used to set the conditions were toothpastes. This kind of product was selected for two main reasons. Firstly, this product is generally purchased by all kinds of respondents, who have certain regularity and familiarity with the item (Saini & Sahay, 2014). Secondly, toothpastes are consumer goods that are frequently appraised, rapidly replaced, bought by a large part of the population, and are not target of extreme brand switching or proliferation (McGuinness et al., 1995). For those reasons, toothpastes were used in the conditions to show the different levels of GSCM deployment.

Afterward, a ranking task was administered. This is a similar procedure to the paired comparison, but the three conditions were presented simultaneously. The same four questions presented in the paired comparison task were also shown in the ranking task. The six options to display the conditions (i.e., condition 1 vs. condition 2 vs. condition 3, and all the possible combinations of positions) were randomly and evenly presented among all the participants as well. Finally, consumers' moral orientations toward the environment —embodied in two subscales of protected values— were requested (Gibson et al., 2013; Hanselmann & Tanner, 2008), followed by sociodemographic questions.

For the translation processes, a back translation procedure was employed (Brislin, 1986). Firstly, every question was translated into English. Secondly, a professor (both native English speaker and highly proficient Spanish speaker) back translated the questions from English to Spanish. Additionally, another professor translated the first Spanish version of the experiment into English. Then, a triangulation of the translations was made with the original version, the back translated version, and the just-English translated version. Thus, the experiment contained the best of the three previous versions, either in Spanish or English because the participants had the choice to take the “survey” in both languages. This final version of the experiment was reviewed and checked by all the researchers involved in the study before pre-testing it in a sample of students.

### **3.3 Pre-test**

The researchers evaluated the scenarios and the whole instrument to assure face validity and the realism of the different scenarios. Subsequently, a pre-test was performed to examine readability and internal validity, and to test for possible effects of the images logos on the conditions and of the conditions positions on the paired comparison and ranking tasks. The population used in this pre-test was composed of 170 undergraduate students from nine mandatory courses and one free-choice course of the Industrial Engineering program in the Universidad Nacional de Colombia.

The pre-test was performed in two stages. In the first stage, 55 students from two courses (i.e., one of the nine mandatory courses and the free-choice course) were asked to fill the experiment. After three email reminders, 54 responses were obtained. In this stage, participants were encouraged to give feedback to the researchers for improving the instrument, either via email or physically. The goal of this step was checking the readability of the whole instrument and collecting all the possible additional questions or suggestions to improve the experiment appearance. It is important to notice that participants' feedback regarding the products' differences was clear enough. In other words, for the participants, the three products were clearly different, going from the “non-green” product, to the “partially green” product, and finishing in the “totally green” product, in term of the deployment of GSCM practices. As a product of the feedback in this stage of the pre-test, the introductory paragraph of the experiment was modified; the writing of the introductions to both direct and indirect measures of the protected values sub-scale were modified; the Spanish writing of one item in the indirect measure of the protected values sub-scale was modified (from “culpable” to “censurable”, for the English translation of “blameworthy”); and two questions in the sociodemographic section were modified (i.e., highest level of completed education and relationship with the university).

In the second stage of the pre-test, 115 students from the rest of the courses (i.e., seven mandatory courses) were asked to fill the experiment. After the same three email reminders sent in the first stage, 82 responses were collected. The goal of this second step was checking internal validity, to test a possible effect of the conditions positions on the paired comparison and the ranking tasks, and of the images logos on the conditions. For this reason, 44 respondents were assigned to an experiment where the images of the conditions contained logos, and the other 38 were assigned in an experiment with no logos, but the instruments were exactly the same. Consequently, some statistical analyses (i.e., t-tests and chi-square tests) were performed. Besides, to establish the reliability of the scales, the Cronbach's alpha ( $\alpha$ ) of the protected values scales was determined. Finally, the Pearson correlations between the items of the same constructs in the conditions were calculated (e.g., the two items of willingness to pay a premium in the condition 3, the two items of purchase intention in the condition 2, the two items of perceived product performance in the condition 1).

The t-tests revealed no differences between the logo and no logo groups for the absolute measures in most of the items: the smallest  $t(65.670) = -1.799$ ,  $p = 0.077$  for the second item of the perceived environmental friendliness of the condition 1, and the biggest  $t(80) = 1.092$ ,  $p = 0.278$  for the second item of the perceived product performance of the condition 2. Just two items were statistically significantly different (significance level = 0.05): the first item of the perceived product performance of the condition 2,  $t(80) = 2.411$ ,  $p = 0.017$ , and the item of flexibility in the direct measures of the protected values sub-scale,  $t(70.807) = 2.374$ ,  $p = 0.020$ . Despite these two items out of the 33 in total, the t-tests supported the idea of no differences between the logo and no logo groups.

Chi-square tests revealed no differences between the logo and no logo groups for the paired comparison and ranking tasks in most of the items: the smallest  $\chi^2(1, N = 82) = 0.000$ ,  $p = 0.991$  for the comparison between the condition 3 and 1 in the perceived product performance, and the biggest  $\chi^2(2, N = 82) = 3.184$ ,  $p = 0.204$  for the comparison among the three conditions in the purchase intention. Just two comparisons were statistically significantly different (significance level = 0.05): willingness to pay a premium for the comparison of the three conditions,  $\chi^2(2, N = 82) = 7.960$ ,  $p = 0.019$ ; and perceived environmental friendliness for the comparison of the three conditions,  $\chi^2(2, N = 82) = 7.592$ ,  $p = 0.022$ .

These two differences emerged because, in both comparisons, condition 1 and condition 2 differed even though condition 3 was the most frequent. For the comparison of the three conditions,

the frequencies are described below (the numbers refer to condition 1, condition 2 and condition 3, respectively). Despite these two comparisons out of 16 in total, the chi-square tests supported the idea of no differences between the logo and no logo groups.

- Willingness to pay a premium:
  - No logo group: 1, 5, 32
  - Logo group: 5, 0, 39
- Perceived environmental friendliness:
  - No logo group: 1, 6, 31
  - Logo group: 2, 0, 42

Lastly, chi-square tests revealed no differences between the groups of the conditions positions for the 16 paired comparison and ranking tasks: the smallest  $\chi^2(1, N = 82) = 0.000$ ,  $p = 1.000$  for the comparison between the condition 3 and 1 (or 2) in the purchase intention, and the biggest  $\chi^2(10, N = 82) = 10.611$ ,  $p = 0.389$  for the comparison among the three conditions in the perceived environmental friendliness. Thus, the pre-test revealed no overall differences between the logo and no logo groups, throughout the absolute, paired comparison and ranking measurements.

After checking the differences between both groups, the Cronbach's alpha ( $\alpha$ ) of the protected values scales was determined. The  $\alpha$  with nine items was 0.702, which is acceptable, but increased to 0.735 if the indirect item of "blameworthy" was taken out. Thus, the Cronbach's alpha suggested to exclude this item. Additionally, Pearson correlations were calculated between the items of the same construct in every condition: the smallest  $r(80) = 0.450$ ,  $p < 0.001$  for both items of the willingness to pay a premium in the condition 2, and the biggest  $r(80) = 0.862$ ,  $p < 0.001$  for both items of the perceived environmental friendliness in the condition 1.

Therefore, considering all the analyses of the second stage of the pre-test and an additional feedback provided by some participants, more changes were made to the instrument: the introductory paragraph of the experiment was modified; the writings of the introductions to both direct and indirect measures of the protected values sub-scale were modified; the item modified in the first stage of the pre-test was excluded (i.e., blameworthy); one item in the direct measure of the protected values sub-scale was modified (i.e., item related with cost-benefit analysis); and one question in the sociodemographic section was added (i.e., number of household members). After this second stage of the pre-test, the instrument was ready to be sent to the actual sample.

### 3.4 Sample

The experiment was conducted using university students as research participants. This consideration has various implications and justifications. Firstly, students are considered as a homogenous sample. Accordingly, universities do not influence personality attitudes, contrary to country variation (Hanel & Vione, 2016). Secondly, this study does not pretend to make statistical generalizations (Peterson & Merunka, 2014), but theory building. For this reason, convenience samples of university students can be useful for identifying theoretical boundary conditions as well as testing theory. Thirdly, student samples are appropriate to supply chain research that use experiments based on commonly used theories. In this sense, if the sample is included in a boundary scope condition of a theoretical framework, students are potentially viable participants in experiments related to logistics and supply chains (Thomas, 2011).

Additionally, studies in young consumers have taken force recently since they are considered the future of society (Hume, 2010; Zhang et al., 2018), play an influential role in green consumption (Uddin & Khan, 2016) and are concerned about the critical environmental condition (Joshi & Rahman, 2016; Prakash & Pathak, 2017), especially in emerging markets (Khare, 2015; Nguyen et al., 2017, 2018) as the Colombian one. Furthermore, students samples have been systematically used in studies regarding sustainable practices and green consumerism (Barone et al., 2007; Iyer & Kashyap, 2007; Khare & Varshneya, 2017; Y. Kim & Choi, 2005; Tascioglu, 2014). Thus, the use of university students in experimental research is clearly justified and worthwhile for this study, expanding previous research that uses college student in the green domain as well (Kao & Du, 2020).

The population used in this study was composed of 1,863 students from the Department of Systems and Industrial Engineering of the School of Engineering, in the Universidad Nacional de Colombia in the first semester of 2020. This population was composed of three main parts. The first one referred to the undergraduate program of Industrial Engineering, which encompassed 517 students. The second part included the undergraduate program of Systems Engineering, composed of 1,027 students. The last part of the population were graduate students of the Department, which accounted for 319 students. These graduate students belonged to the four master's degrees (i.e., M.Sc. in Industrial Engineering, in Systems Engineering, in Telecommunications, and in Bioinformatics) and the two doctoral programs (i.e., Ph.D. in Industries and Organizations, and in Systems and Computation). The email communication used for reaching the participants can be found in the *Appendix C: Email Communication to Participate in the Experiment*.

The final sample was composed of 351 participants. Now, there is an important consideration to take into account regarding the population selected. Although it is not a probability sample, which creates some disadvantages in term of generalizability, non-probability convenience samples, and specifically homogeneous convenience samples (i.e., a sociodemographic subgroup of students from only one Department of the university), produce estimates with clearer generalizability despite its narrowness. Thus, this kind of sample provides more accurate inferences of the population effects (Jager et al., 2017). Therefore, researchers are encouraged to use homogeneous convenience samples in sociodemographic subgroups as an alternative to conventional convenience samples.

### **3.5 Instruments and Measures**

After setting the conditions, as described in section 3.1 *Experimental Conditions: Survey of GSCM Practices*, the rest of the experiment was designed. First of all, an introduction to the experiment was created. This introduction told the participant how long the “survey” was, the anonymous data treatment agreement (i.e., all data introduced by the participant remained confidential), who the people in charge of the study were, and the compensation they could potentially receive (i.e., participating in different draws, according to the quickness of their response). Right after the introduction, there was a paragraph that described what the participants were going to face. The paragraph told the participants which products were going to be shown, what the products descriptions were all about, and the interest of the researchers about their opinions and perceptions.

After the explanatory paragraph, the three scenarios (three rounds) were shown. Each scenario had two parts. The first one consisted of the product image, the product name, and the condition. For the participants, the condition was the product description written by the company who manufactured it. In the second part of the scenario, the participant faced four sets of sentences. Every set of sentences had two questions/affirmations operationalized in a 7-point Likert scale, from “Strongly disagree” to “Strongly agree” if they were affirmations, or from “Very unlikely” to “Very likely” if they were questions. The first two sets were referred to the consumers’ willingness to pay a premium (WPP) and the consumer’s purchase intention (PI) (G. Kim, 2015). The third set pointed to the perceived product performance (PPP) (Leroi-Werelds et al., 2017; Venhoeven et al., 2016). The last set of sentences referred to the perceived environmental friendliness (PEF) of the product (Mohd Noor et al., 2016). Both scenarios and sentences were randomly and evenly presented to the participants.

Following the three rounds, the paired comparison and the ranking tasks were shown. The details of those procedures were described before, in section 3.2 *Experimental Study and Procedure*. The paired comparison had dichotomous scales in each question. As explained in the mentioned section, each paired comparison task has four affirmations, one per each set from the scenarios described above in the previous paragraph. Thus, the participants had to make a dichotomous decision between two conditions for each affirmation. In the ranking task, participants were asked for a similar choice (i.e., same affirmations as in the paired comparison task) but among the three conditions.

After the ranking task, two subscales of protected values (Gibson et al., 2013; Hanselmann & Tanner, 2008) were shown. The introductions to both subscales were adapted to the context studied (i.e., green consumerism) and were conceived to measure protected values from different angles. The first subscale was composed of four items, which represented an indirect approach because other people's choices were depicted. The second subscale was also composed of four items, and served as a direct approach to measure participant's own protected values. Both subscales were 7-point Likert scales adapted from previous works (Gibson et al., 2013), were highly correlated and tackled specific features of protected values, such as value sacrifice unwillingness, incommensurability and trade-off reluctance.

Then, some sociodemographic questions were posed to the participants. The questions covered age, gender, highest level of completed education, participants' university campus (e.g., Bogotá, Medellín), relationship with the university (e.g., student, professor), current and former academic program (if applied), percent of progress in the academic program, socioeconomic status, monthly average income and number of people in their household. At the end of the sociodemographic section, one question regarding the last purchase of an environmentally friendly product was introduced to briefly characterize the sample. The experiment concluded with a closing message where the acknowledgements for participating in the "survey", the draws details and the people in charge of the study were stated again, as in the introduction of the experiment. Lastly, the participants had the opportunity to write their email to be contacted in case they won any prize. The whole experiment can be found in *Appendix D: Experimental Stimuli and Instruments*.

### **3.6 Data Analysis**

To analyze the data, three main procedures were followed. Firstly, the path-analytic framework formalized in the SPSS macro MEMORE was used (Amanda K Montoya & Hayes, 2016)

to measure mediation effects. The analysis considered the two mediation models immersed in *Figure 2-1* and *Figure 2-2* in a two-instances within-participant design of the three proposed conditions. As explained in the section *3.1 Experimental Conditions: Survey of GSCM Practices*, the three conditions represented companies' product scenarios, drawn from extant literature of the Colombian context (Quiroga-Calderón et al., 2018). The analysis considered all the possible combinations of the conditions, i.e., "totally" green (condition 3, or C3) vs. "partially" green products (condition 2, or C2), non-green products (condition 1, or C1) vs. C2, and C3 vs. C1, to calculate the direct, the indirect and the total effects for each model. This analysis included bootstrap confidence intervals for the indirect effects, using 10,000 bootstrap samples.

Secondly, the SPSS macro MEMORE was used for conducting and estimating inferences on the interactions between the repeated measures factor (i.e., conditions) and the between-subject moderator (i.e., protected values) using linear regressions (Amanda Kay Montoya, 2019). The index created averaging both protected values sub-scales was used as moderator. The moderation analyses carried out in this second procedure described the moderation effects of the variable "Consumers' moral orientation toward the environment" depicted in both models of *Figure 2-1* and *Figure 2-2*. As in the mediation analysis, the moderation effects considered all the possible combinations of the conditions, but this time perceived product performance was included as a dependent variable. In this procedure, the effects of the conditions on the dependent variables—i.e., consumers' willingness to pay a premium (WPP), purchase intention (PI) and perceived product performance (PPP)—at different values of the moderator (i.e., protected values) were considered. The effects of the moderator on every dependent variable at different instances (i.e., conditions) were calculated as well.

Thirdly, the paired comparison and the ranking data were analyzed using non-parametric tests to see how respondents chose among the conditions. Friedman tests and Wilcoxon Signed-Rank tests were performed to determine the differences of the respondents' frequencies when choosing one condition over another in terms of the dependent variables. Finally, after median-splitting the protected values index, Mann-Whitney U tests were performed to see if there were differences among the respondents' frequencies of choices on dependent variables across protected values.

One last analysis was performed. To check any possible nonresponse bias (Groves, 2006), the differences between the three waves of respondents were evaluated (Vink & Boomsma, 2008). Thus, the participants were assigned to three groups according to the wave they responded in the email reminders. In other words, the respondents who filled the experiment before the second

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reminder entered in the first group. The respondents who filled the experiment after the second reminder and before the third reminder entered in the second group. Thus, the rest of the participants who filled the experiment after the third reminder entered in the third group. To see if there were differences among the groups, ANOVA (with Tukey post hoc) and chi-square ( $\chi^2$ ) tests were carried out throughout the absolute measures and the paired comparison/ranking data, respectively. Additionally, some characteristics of the sample were compared to the population characteristics to further evaluate the presence of nonresponse bias (Chin & Lee, 2008).



## 4. Results

Initially, the data were organized, together with the search for missing, atypical values and outliers (Hair et al., 2014). After these processes, 13 responses were excluded following the multivariate detection of outliers with the Mahalanobis ( $D^2$ ) distance. Afterward, the two items of each construct in every condition were averaged to have just one measure of WPP, PI, PPP and PEF. Before the mediation and moderation analysis, the protected values scale was validated through a Confirmatory Factory Analysis (CFA), which can be observed in *Table 4-1* and *Table 4-2*. As a product of this validation, two items were excluded and a 6-item construct was obtained. An index of the degree of protected values was created by averaging these six items. The Cronbach's alpha ( $\alpha$ ) of this construct was calculated as a measure of internal consistency (Emerson, 2019), and the value obtained (0.763) was acceptable to continue with the subsequent analysis (Taber, 2018). Additionally, the basic statistics (i.e., mean, standard deviations and frequencies) of the data can be seen in *Table 4-3* and *Table 4-4*.

Table 4-1. Completely Standardized Solution of the Confirmatory Factory Analysis (CFA) of the protected values scale

Item	Completely Standardized Solution
PV_IndirectMeasure_Moral	0.7330
PV_IndirectMeasure_Praise	0.7030
PV_IndirectMeasure_Outrage	0.5630
PV_IndirectMeasure_Accept	0.9140
PV_DirectMeasure_Sacrific	0.3400
PV_DirectMeasure_Flexible	0.4750
<b>Cronbach's Alpha (<math>\alpha</math>)</b>	0.7630
<b>Average Variance Extracted (AVE)</b>	0.4200
<b>Composite Reliability (CR)</b>	0.8000

Table 4-2. Model fit indices for the of the Confirmatory Factory Analysis (CFA) of the protected values scale

Model fit indices	Model
<b>Chi-square (<math>\chi^2</math>)</b>	
Chi-square ( $\chi^2$ )	11.3600
Degrees of freedom (df)	9
p-value	0.3250
<b>Absolute Fit Measures</b>	
Goodness-of-Fit Index (GFI)	0.9910
Root Mean Square Error of Approximation (RMSEA)	0.0208
90 percent confidence interval for RMSEA	(0.0; 0.0666)
Root Mean Square Residual (RMSR)	0.0477

Standardized Root Mean Residual (SRMR)	0.0221
Normed chi-square ( $\chi^2/df$ )	1.2622
<b>Incremental Fit Indices</b>	
Normed Fit Index (NFI)	0.9880
Non-Normed Fit Index (NNFI)	0.9970
Comparative Fit Index (CFI)	0.9980
Relative Fit Index (RFI)	0.9800
<b>Parsimony Fit Indices</b>	
Adjusted Goodness-of-Fit Index (AGFI)	0.9780
Parsimony Normed Fit Index (PNFI)	0.5930

Table 4-3. Mean (M) and Standard Deviations (SD) of the absolute measures of the study

Item\Statistic	Mean (M)	Std. Deviation (SD)
C3_WPP	4.8624	1.2987
C3_PEF	5.4896	1.1730
C3_PPP	4.7367	1.0156
C3_PI	5.1524	1.2610
C2_WPP	3.8624	1.2533
C2_PEF	4.1450	1.3914
C2_PPP	4.3003	1.0188
C2_PI	4.0414	1.4020
C1_WPP	2.2559	1.3103
C1_PEF	2.0695	1.5038
C1_PPP	3.7515	1.2297
C1_PI	2.4334	1.4124
PV IndirectMeasure Moral	5.4734	1.4082
PV IndirectMeasure Praise	6.1627	1.1785
PV IndirectMeasure Outrage	5.4438	1.5876
PV IndirectMeasure Accept	5.6834	1.3642
PV DirectMeasure Sacrific	5.1420	1.7779
PV DirectMeasure Flexible	4.9379	1.6858
PVIndex	5.4739	1.0241

Table 4-4. Frequencies of the paired comparison and ranking tasks in the study

Item	Co.	Fr.	%	Co.	Fr.	%	Co.	Fr.	%	Co.	Fr.	%
PPP	C2	73	21.6	C1	75	22.19	C1	70	20.71	C1	61	18.05
	C3	265	78.4	C2	263	77.81	C3	268	79.29	C2	45	13.31
										C3	232	68.64
PI	C2	39	11.54	C1	30	8.88	C1	21	6.21	C1	14	4.14
	C3	299	88.46	C2	308	91.12	C3	317	93.79	C2	47	13.91
										C3	277	81.95
WPP	C2	37	10.95	C1	28	8.28	C1	23	6.80	C1	14	4.14
	C3	301	89.05	C2	310	91.72	C3	315	93.20	C2	35	10.36
										C3	289	85.5
PEF	C2	26	7.69	C1	22	6.51	C1	17	5.03	C1	14	4.14
	C3	312	92.31	C2	316	93.49	C3	321	94.97	C2	25	7.40
										C3	299	88.46

Notes: Co. (Condition), Fr. (Frequencies), % (Percent)

The results of the mediation analysis (see *Table 4-5*) revealed an incremental additive effect. Products that communicate internal GSCM practices (C2) increase consumers' WPP and PI compared with products that do not employ those practices (C1). As expected, this effect increases when external GSCM practices are added. Thus, a product that communicates external and internal GSCM practices (C3) has an additional influence on consumers' WPP and PI compared with a product that just communicates internal GSCM practices (C2). So far, the results supported the first set of hypotheses ( $H_{1a}$  and  $H_{1b}$ ). Now, the incremental effect of going from C2 to C3, related to the effect of going from C1 to C2, is smaller (see column *c* in *Table 4-5*).

Table 4-5. Summary of the direct, the indirect and the total effects of the mediation analysis

Mediator (1 <sup>st</sup> instance)	Mediator (2 <sup>nd</sup> instance)	Dependent Variable (1 <sup>st</sup> instance)	Dependent Variable (2 <sup>nd</sup> instance)	c'	a	b	ab	c
C3_PPP	C2_PPP	C3_WPP	C2_WPP	0.7109	0.4364	0.6625	0.2891	1.0000
C2_PPP	C1_PPP	C2_WPP	C1_WPP	1.3042	0.5488	0.5509	0.3023	1.6065
C3_PPP	C1_PPP	C3_WPP	C1_WPP	1.8871	0.9852	0.7302	0.7194	2.6065
C3_PPP	C2_PPP	C3_PI	C2_PI	0.7965	0.4364	0.7205	0.3144	1.1109
C2_PPP	C1_PPP	C2_PI	C1_PI	1.2374	0.5488	0.6752	0.3705	1.6080
C3_PPP	C1_PPP	C3_PI	C1_PI	1.9843	0.9852	0.7457	0.7347	2.7189

*Notes:* Every row represents a two-instances repeated-measures linear regression, as suggested in previous works (Amanda K Montoya & Hayes, 2016). All regressions were statistically significant ( $p < 0.001$ ).

*c'* (direct effect), *a* (partial indirect effect: effect of the condition on the mediator), *b* (partial indirect effect: effect of the mediator on the dependent variables), *ab* (whole indirect effect), *c* (total effect).

To check all the details of the regressions, see *Table 11-2* in *Appendix E: Full Results of the Regression Analysis*.

In detail, the total effect of “totally” green products on consumers' WPP ( $c = 2.606$ ,  $t(337) = 24.785$ ,  $p < 0.001$ ) or consumers' PI ( $c = 2.718$ ,  $t(337) = 26.547$ ,  $p < 0.001$ ) is higher when compared with non-green products than when compared with “partially” green products:  $c = 1.000$ ,  $t(337) = 13.795$ ,  $p < 0.001$  for consumers' WPP, and  $c = 1.1109$ ,  $t(337) = 14.388$ ,  $p < 0.001$  for consumers' PI (for the details of the calculations, see *Table 11-2* in the *Appendix E: Full Results of the Regression Analysis*). Interestingly, the total effect of “partially” green products on consumers' WPP ( $c = 1.606$ ,  $t(337) = 18.846$ ,  $p < 0.001$ ) or consumers' PI ( $c = 1.608$ ,  $t(337) = 17.346$ ,  $p < 0.001$ ) compared with non-green products is not exactly in the middle of the effect of “totally” green products and non-green products. The total effect of “partially” green compared with non-green products accounts for 61.634% and 59.142% of the total effect of “totally” green compared with non-green products for the WPP and PI situations, respectively. The other 38.366% and 40.858% stands for the total effect of “totally” green compared with “partially” green products in the WPP

and PI situations, respectively. Furthermore, going from “partially” green to “totally” green products increases WPP in 62.247% and PI in 69.086%.

Additionally, the total effect is mediated through the perceived product performance. These results supported the second and the third set of hypotheses ( $H_{2a}$ ,  $H_{2b}$ ,  $H_{3a}$  and  $H_{3b}$ ), and can be seen in the path coefficients of the columns  $a$  and  $b$ , respectively, in *Table 4-5*. An interesting feature is that the percent of the indirect effect in the total effect is higher when C3 is present (see column  $ab$  in *Table 4-5*). Therefore, there is evidence of the direct and the indirect effect (i.e., the halo effect), as the models depicted in *Figure 2-1* and *Figure 2-2* predicted.

Particularly, the indirect effect of “totally” green products on consumers' WPP ( $ab = 0.289$ ,  $SE = 0.049$ , 95% CI [0.1976, 0.390], 28.910% of the total effect) or consumers' PI ( $ab = 0.314$ ,  $SE = 0.055$ , 95% CI [0.212, 0.429], 28.301% of the total effect) accounts for about the same percent in the total effect when compared with “partially” green products as when compared with non-green products:  $ab = 0.719$ ,  $SE = 0.073$ , 95% CI [0.579, 0.863], 27.600% of the total effect for consumers' WPP, and  $ab = 0.734$ ,  $SE = 0.076$ , 95% CI [0.589, 0.889], 27.022% of the total effect for consumers' PI (for the details of the calculations, see *Table 11-2* in the *Appendix E: Full Results of the Regression Analysis*). Interestingly, the percent of the indirect effect of “partially” green products on consumers' WPP ( $ab = 0.302$ ,  $SE = 0.052$ , 95% CI [0.205, 0.407], 18.817% of the total effect) or consumers' PI ( $ab = 0.370$ ,  $SE = 0.063$ , 95% CI [0.252, 0.498], 23.041% of the total effect) compared with non-green products is smaller than the other two effects (i.e., “totally” compared with “partially” green products, and “totally” compared with non-green products).

The results of the moderation analysis supported the hypothesized models. For example, when the index of protected values is 5.473 (the sample mean) the expected difference in C3 and C2 in the WPP situation is 1.000,  $t(336) = 14.266$ ,  $p < 0.001$ . For all the other calculations in this regard, see *Table 11-4* in the *Appendix E: Full Results of the Regression Analysis*. Additionally, for each unit increased in protected values, there is 0.338 increase in the difference between C3 and C2 in the WPP situation,  $t(336) = 4.939$ ,  $p < 0.001$ . Details of the other calculations can be found in *Table 11-3* in the *Appendix E: Full Results of the Regression Analysis*. This pattern was found in every combination (i.e., C3 vs C2, C2 vs. C1, C3 vs. C1) across all the dependent variables (i.e., WPP, PI and PPP). The moderation effects can be observed in *Figure 4-1*, *Figure 4-2* and *Figure 4-3*, which supported the fourth and the fifth set of hypotheses ( $H_{4a}$ ,  $H_{4b}$ ,  $H_{5a}$  and  $H_{5b}$ ). These interactions should consider the significant regions determined by the Johnson-Neyman transition points of significance ( $p < 0.05$ ). Before those points, the effects are not significant. In all these figures, the moderator

effect increases with the index of protected values. Additionally, the moderation analysis endorses the additive effect of the mediation results.

It is interesting to point out that the weakest effect is the comparison between the “totally” green and the “partially” green product (C3 vs. C2), followed by the comparison between the “partially” green and the non-green product (C2 vs. C1). Thus, the strongest effect is the comparison between the “totally” green and the non-green product (C3 vs. C1). It is worth mentioning that the effects are stronger in the situations of WPP and PI than in the PPP situation (see *Table 11-4* in the *Appendix E: Full Results of the Regression Analysis*).

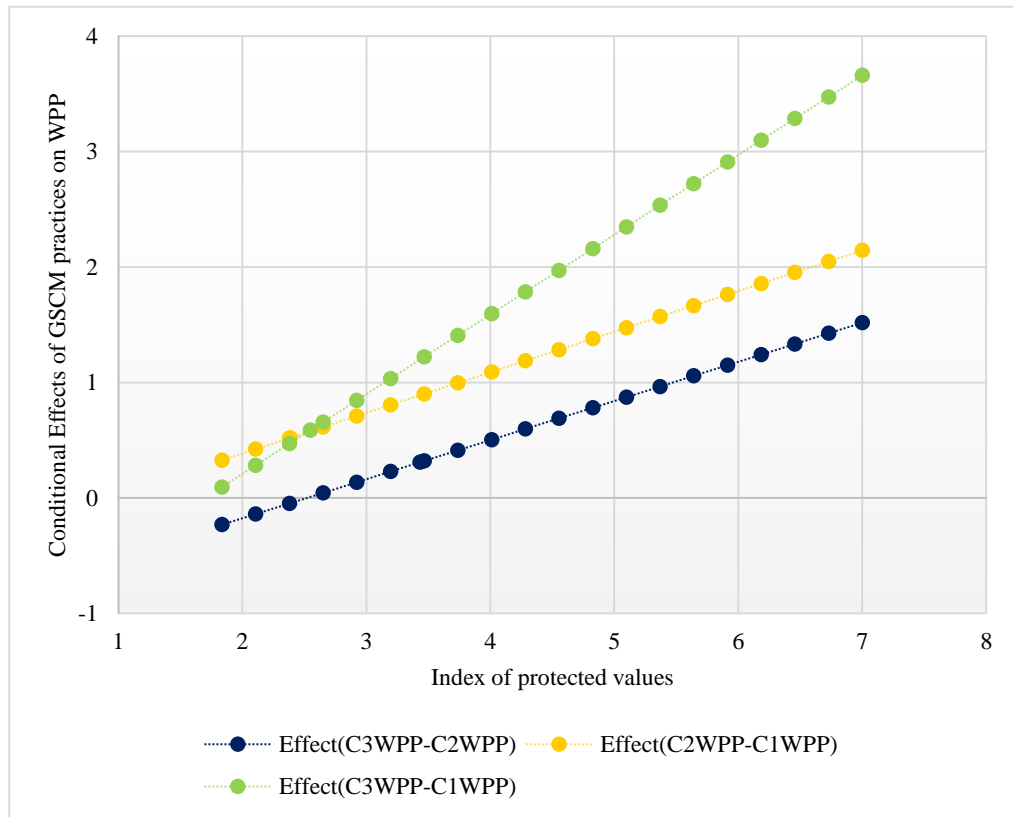


Figure 4-1. Conditional effects of GSCM on WPP as a linear function of protected

*Notes:* The Johnson-Neyman transition points of significance,  $p < 0.05$ , (Amanda Kay Montoya, 2019) are 3.430 for the effect of C3-C2, 2.384 for the effect of C2-C1, and 2.545 for the effect of C3-C1.

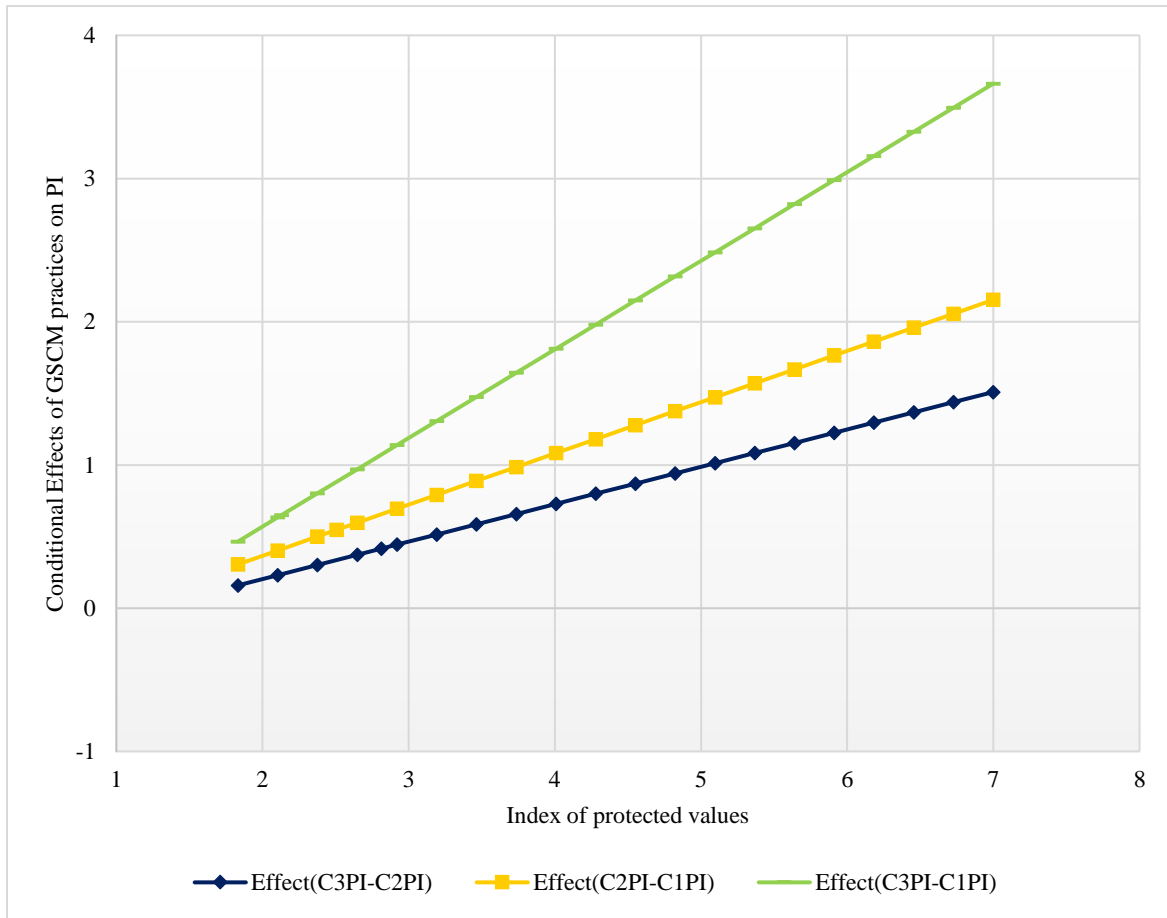


Figure 4-2. Conditional effects of GSCM on PI as a linear function of protected values

Notes: The Johnson-Neyman transition points of significance,  $p < 0.05$ , (Amanda Kay Montoya, 2019) are 2.814 for the effect of C3-C2, 2.507 for the effect of C2-C1, and 2.129 for the effect of C3-C1.

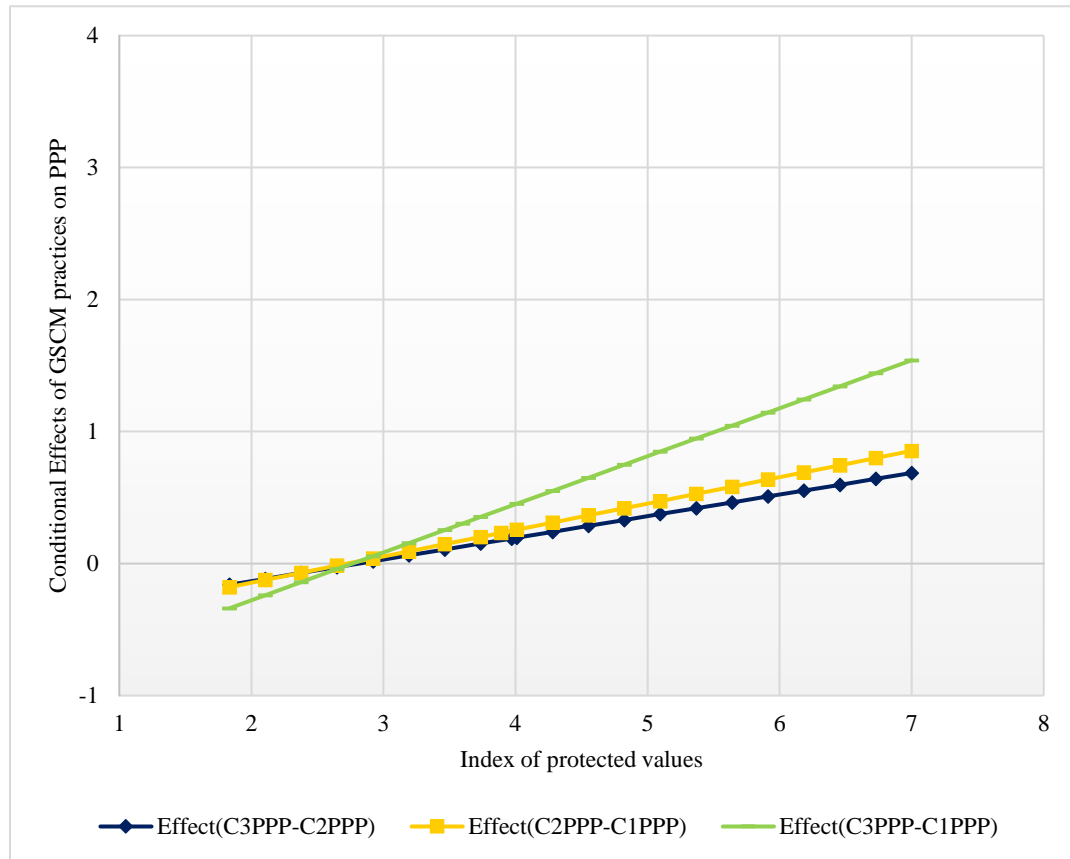


Figure 4-3. Conditional effects of GSCM on PPP as a linear function of protected values

Notes: The Johnson-Neyman transition points of significance,  $p < 0.05$ , (Amanda Kay Montoya, 2019) are 3.971 for the effect of C3-C2, 3.890 for the effect of C2-C1, and 3.599 for the effect of C3-C1.

There is one effect more to consider: the effect of the moderator on the dependent variables. For example, consider two individuals who are one unit different from each other in the index of protected values in C3, in the WPP situation. Here, the individual with higher protected values is expected to be 0.393 units different,  $t(336) = 5.985$ ,  $p < 0.001$  (see *Table 4-6*). Now, in C2 in the same WPP situation, a one-unit difference in protected values is related to a 0.055 units of difference, but the difference is non-significant,  $t(336) = 0.825$ ,  $p = 0.409$ . However, for the same individuals, a one-unit difference in protected values in C1 in the same WPP situation is related to -0.296 units of difference,  $t(336) = -4.368$ ,  $p < 0.001$ . This pattern was found across all dependent variables (WPP, PI and PPP).

Table 4-6. Summary of the effects of the moderator on the dependent variables

Dependent Variable	Effect	p-value
C3_WPP	0.3936	0.0000
C2_WPP	0.0550	0.4099
C1_WPP	-0.2966	0.0000
C3_PI	0.3045	0.0000
C2_PI	0.0432	0.5628
C1_PI	-0.3143	0.0000
C3_PPP	0.1559	0.0038
C2_PPP	-0.0081	0.8821
C1_PPP	-0.2078	0.0014

*Notes:* Every row represents a two-instances repeated-measures linear regression of the effects of the moderator (i.e., index of protected values) on the dependent variables in each condition, as suggested in previous works (Amanda Kay Montoya, 2019).

To check all the details of the regressions, see *Table 11-6* in *Appendix E: Full Results of the Regression Analysis*.

These results of the mediation and moderation analysis of the absolute measure are consistent with the analysis of the paired comparison and the ranking tasks. Respondents chose the greener alternative more often (see *Table 4-4*). Now, the Friedman tests revealed a statistically significant difference in the evaluation of the dependent variables (WPP, PI, PPP) across the three paired comparison and the ranking tasks: C3 vs. C2,  $\chi^2(3) = 60.182$ ,  $p < 0.001$ ; C2 vs. C1,  $\chi^2(3) = 84.082$ ,  $p < 0.001$ ; C3 vs. C1,  $\chi^2(3) = 99.667$ ,  $p < 0.001$ ; and C3 vs. C2 vs. C1,  $\chi^2(3) = 110.097$ ,  $p < 0.001$ . A post hoc analysis with Wilcoxon signed-rank tests, with a Bonferroni correction applied, revealed that the differences were systematic in all the comparisons. The only different item was PPP: C3 vs. C2,  $Z_{PI-PPP} = -4.464$ ,  $Z_{WPP-PPP} = -4.899$ , both with  $p < 0.001$ ; C2 vs. C1,  $Z_{PI-PPP} = -5.762$ ,  $Z_{WPP-PPP} = -5.921$ , both with  $p < 0.001$ ; C3 vs. C1,  $Z_{PI-PPP} = -6.490$ ,  $Z_{WPP-PPP} = -6.119$ , both with  $p < 0.001$ ; and C3 vs. C2 vs. C1,  $Z_{PI-PPP} = -6.381$ ,  $Z_{WPP-PPP} = -7.226$ , both with  $p < 0.001$ . This suggested that respondents had a clear inclination to choose the greener option in the case of WPP and PI. In the case of PPP, some respondents did not feel strong enough to choose the greener option. However, these results did not contradict the idea of mediation, even if the effect is weaker for some participants in the paired comparison and the ranking tasks.

The final analysis of the paired comparison and ranking tasks was the Mann-Whitney U tests. These tests revealed statistically significant differences ( $p < 0.05$ ) between the groups of high and low protected values in 10 out of the 12 comparisons (i.e., WPP, PI and PPP in the three paired comparisons and the ranking tasks). Just two comparisons were not statistically significantly different: PPP in C2 vs. C1,  $U = 15,302.000$ ,  $z = 1.583$ ,  $p = 0.113$ , and WPP in C2 vs. C1,  $U =$

15,095.500,  $z = 1.905$ ,  $p = 0.057$ . Thus, these results supported the moderation analysis of the absolute measures, confirming the choice of the green products over traditional products in people with higher protected values.

As mentioned at the end of section the *3.6 Data Analysis*, ANOVA tests were performed to check any possible nonresponse bias, assuming that participants who entered in the last wave would have similar responses compared to students who did not fill the experiment. Then, the respondents were assigned to three groups, according to what wave they responded in. Thus, the ANOVA tests revealed no differences among the groups in 24 out of the 28 absolute measures items of the experiment. The four items that reported differences among the groups were: the first item of PEF in C2 ( $F(2, 335) = 3.820$ ,  $p = 0.023$ ), the first item of PI in C2 ( $F(2, 335) = 6.843$ ,  $p = 0.001$ ), the second item of PI in C2 ( $F(2, 335) = 5.883$ ,  $p = 0.003$ ), and the second item of PI in C1 ( $F(2, 335) = 3.045$ ,  $p = 0.049$ ).

A Tukey post hoc test revealed statistically significant differences in the second group (i.e., the second wave of respondents) across the four items. Therefore, the first ( $4.43 \pm 1.484$ ,  $p = 0.041$ ) and the third group ( $4.63 \pm 1.464$ ,  $p = 0.045$ ) reported higher PEF in the first item than the second group ( $3.96 \pm 1.359$ ) in C2; the first group ( $4.16 \pm 1.411$ ,  $p = 0.001$ ) reported higher PI in the first item than the second group ( $3.46 \pm 1.473$ ) in C2; the first group ( $4.25 \pm 1.442$ ,  $p = 0.002$ ) reported higher PI in the second item than the second group ( $3.59 \pm 1.394$ ) in C2; and the first group ( $2.55 \pm 1.556$ ,  $p = 0.044$ ) reported higher PI in the second item than the second group ( $2.08 \pm 1.144$ ) in C1. Despite these four items, the results of the ANOVA tests supported the idea of absence of nonresponse bias in the absolute measures.

Similarly, the chi-square ( $\chi^2$ ) tests revealed no differences among the groups in 14 out of the 16 paired comparison/ranking items of the experiment. The two items that reported differences among the groups were the item of PEF when comparing C2 and C1,  $\chi^2(2, N = 338) = 7.901$ ,  $p = 0.019$ , and the item of PEF when comparing the three conditions,  $\chi^2(4, N = 338) = 15.700$ ,  $p = 0.003$ . As in the chi-square tests performed in the pre-test, the differences among groups for these two items emerged because the expected count was different to the observed count in one of the waves. The frequencies of both items are described below. The numbers refer to C1 and C2 for the first item, and C1, C2 and C3 for the second item, respectively. Despite these two items, the chi-square tests supported the idea of absence of nonresponse bias in the paired comparison and ranking data.

- PEF when comparing C1 and C2:
  - First wave: 12, 209

- Second wave: 3, 71
- Third wave: 7, 36
- PEF when comparing the three conditions (C1, C2 and C3):
  - First wave: 6, 21, 194
  - Second wave: 2, 3, 69
  - Third wave: 6, 1, 36

Finally, the last analysis to check any possible source of nonresponse bias is the comparison of the available characteristics of the population against the sample characteristics. If there are no substantial differences between them, the possibility of nonresponse bias is diminished (Chin & Lee, 2008). The only information available from the population is the number of students in every program. Thus, *Table 4-7* compares the information of the population and the sample in this regard, revealing no major changes among the three groups (i.e., Systems Engineering students, Industrial Engineering students, and Graduate students). In this way, the last possible chance of nonresponse bias was ruled out.

Table 4-7. Percent of the sample's students in every university program compared to the population's

Program	Population		Sample			
			Respondents		Missing values	
	Students	%	Students	%	Students	%
<b>Systems Engineering</b>	1027	55.126	176	52.071	6	1.775
<b>Industrial Engineering</b>	517	27.751	90	27.108		
<b>Graduate Students</b>	319	17.123	66	19.526		
<b>Total</b>	1863	100.000	332	98.225	6	1.775

*Notes:* To see all the sociodemographic information in detail, go to the *Appendix F: Sociodemographic Information*

## 5. Discussion

This study analyzes green consumerism from a psychological perspective, considering the communication of GSCM practices. As other works have pointed out (Bangsa & Schlegelmilch, 2020; B. Chekima et al., 2017; Ritter et al., 2015), the importance of understanding the psychological mechanisms through which consumers appraise companies' sustainable practices—including those that are displayed along their supply chains (Sarkis, 2018)—is relevant for academics as well as for practitioners. For this purpose, the study draws from two approaches that have been associated with green consumerism studies (Groening et al., 2018) i.e., protected values (Baron, 2017) and the halo effect (Thorndike, 1920), to explain consumers' willingness to pay a premium and consumers' purchasing intention. These two perspectives are useful to understand how values are linked to green consumerism (Qingyun Zhu & Sarkis, 2016), and the effects of firms' prosocial behavior on consumers' perception of the products (Chernev & Blair, 2015).

The first set of hypotheses ( $H_{1a}$  and  $H_{1b}$ ) accounted for the main effect of GSCM practices on consumers' WPP and consumers' PI, and were supported by the mediation analyses performed with the SPSS macro MEMORE (Amanda K Montoya & Hayes, 2016). This main effect is acknowledged in previous works (Bowon Kim et al., 2014; Kulshreshtha et al., 2019; C. Lee & Lim, 2020). There is an additive effect of going from non-green, to “partially” green, and finally to “totally” green products, in terms of the scope of implementation of GSCM practices (Green, Zelbst, Meacham, et al., 2012). In fact, if companies that are already displaying internal efforts (C. Lee & Lim, 2020) extend them to the supply chain and deploy more advanced (externally oriented GSCM) practices (Qinghua Zhu et al., 2008, 2010), the contribution in terms of consumers' WPP and PI will increase 38.366% and 40.858%, respectively.

This could have implications for companies who are not deploying any type of GSCM practice. Indeed, if companies are not initially deploying GSCM and start to make some efforts internally, consumers' will be willing to pay more and have a higher purchase intention regarding the companies' products. This would be the first stage on a companies' trip of going green throughout the whole supply chain (Green, Zelbst, Meacham, et al., 2012). These results imply that consumers are in fact willing to pay more (Bowon Kim et al., 2014), or have a higher purchase intention (H.

Kim & Lee, 2018), for the deployment of some (internally oriented GSCM) practices (Qinghua Zhu et al., 2013).

Then, the efforts of companies deploying just internally oriented GSCM practices (Qinghua Zhu et al., 2013) could increase consumers' WPP and PI, but they have the opportunity to go further and boost consumers' WPP and PI if they start to extend those efforts to the supply chain (Vachon & Klassen, 2006) and deploy some more advanced practices (Qinghua Zhu et al., 2008, 2010). All these efforts could enhance the companies' environmental and economic performance (Laari et al., 2016; Qinghua Zhu et al., 2007), and at the same time improve global environmental sustainability (Pagell & Shevchenko, 2014). In fact, as some consumers prefer externally-oriented GSCM practices over internally-oriented GSCM practices (Bowon Kim et al., 2014; Kulshreshtha et al., 2019), firms that are oriented toward sustainability could be motivated to implement advanced GSCM practices, expecting the retribution from consumers in terms of WPP and PI.

The second and the third set of hypotheses ( $H_{2a}$ ,  $H_{2b}$ ,  $H_{3a}$  and  $H_{3b}$ ) accounted for the indirect effects of GSCM practices on consumers' WPP and consumers' PI through consumers' PPP. These effects are also supported by the mediation analyses performed with the SPSS macro MEMORE (Amanda K Montoya & Hayes, 2016). The mediation was held for all the regressions performed, but with different particularities. In the situations where the "totally" green product was absent, the mediations were lower. This implies that the halo effect was stronger in situations where the greenest alternative was depicted.

These mediation results could have implications in the way companies consider the halo effect. This effect is confirmed in this study and, as suggested by other works (Bacig & Young, 2019; Sörqvist, Haga, Langeborg, et al., 2015), it would more beneficial for companies to advertise a "totally" green product in comparison with other non-green or "partially" green alternatives, because people will tend to perceive the product with better performance (Chernev & Blair, 2015). Now, this halo effect could be diminished if the product advertised is just "partially" green in comparison to other non-green alternatives. However, this detrimental effect could be compensated by the main effect of the GSCM practices on consumers' WPP and PI (Bowon Kim et al., 2014; H. Kim & Lee, 2018).

The fourth and the fifth set of hypotheses ( $H_{4a}$ ,  $H_{4b}$ ,  $H_{5a}$  and  $H_{5b}$ ) were supported when it was revealed that protected values moderate the effect of GSCM practices on consumers' WPP, PI and PPP. These effects are supported by the moderation analyses performed with the SPSS macro

MEMORE as well (Amanda Kay Montoya, 2019). In all the regression analyses, the conditional effects of GSCM practices on every dependent variable (WPP, PI, PPP) increase as protected values go higher.

Therefore, these results recommend to pay particular attention to values as precursors of consumers' purchasing processes (Groening & Zhu, 2019). Likewise, the results urge to consider the influence of protected values on other factors of green consumerism (Bangsa & Schlegelmilch, 2020; Groening et al., 2018), which could lead to scenarios where companies, and society in general, try to modify consumers' values (Lin & Huang, 2012) to a more sustainable approach. Thus, this work highlights the importance of consumers' moral orientation toward the environment (Sörqvist, Haga, Langeborg, et al., 2015) as potential moderator in situations of product evaluations, in contrast to previous works that found no evidence of the mentioned interaction (Byungdoo Kim & Schuldt, 2018).

The interaction of both psychological approaches supports the overall model depicted in *Figure 2-1* and *Figure 2-2*. The study found that people who held protected values evaluate the product itself better, which backs the concept of the halo effect. People with high protected values are not likely to pay more for the product (or have high purchase intentions) just because it is produced under GSCM practices, but also because they perceive it as better in terms of performance. This study found evidence of this phenomenon, although previous studies suggest that this interaction was difficult to replicate (Sörqvist, Haga, Langeborg, et al., 2015). Thus, *Figure 2-1* and *Figure 2-2* integrated both psychological approaches in two models that attempt to describe green consumerism, as other several mechanisms have tried to (Groening et al., 2018).

The final interaction to consider is the effect of the moderator on the dependent variables at different conditions. To explain this effect, an example can be considered. If one individual has higher protected values than another (one-unit difference), he/she is willing to pay more, has higher purchase intentions, and has a higher perceived performance for the "totally" green product (F. Klein et al., 2019). For the "partially" green product, there are no differences in WPP, PPP and PI for both individuals (Moser, 2015). Interestingly, for the non-green product, the individual with higher protected values is not willing to pay more, has lower purchase intentions, and does not perceive the product as having a better performance (Taylor & Noseworthy, 2020). It is worth mentioning that, as in the moderation analysis of the effects of the GSCM practices on the dependent variables, the effects of the moderator on consumers' PPP are the weakest ones compared with the effects of the moderator on WPP and PI.

These last results can have serious implications on the way companies understand their markets because of the trade-offs that consumers could potentially face (Bangsa & Schlegelmilch, 2020). If a company advertises a non-green product, as it would do in normal circumstances (Hartmann & Apaolaza-Ibáñez, 2012), but to a segment of the population that does care about the environment, the WPP, PI and PPP could have detrimental effects on sales (in the case of manufacturing companies). Likewise, if a company advertises a “totally” green product to a segment of the population that does not care about the environment, the effects on WPP, PI and PPP will not be as high as probably expected. Hence, the GSCM efforts would not impact consumers' WPP, PI and PPP as the company would like to. Consequently, the lack of monetary retributions in either case could lead to a misunderstanding of the effectiveness of the GSCM contributions to the company. The importance of communicating the adequate product to its respective market segment is a determining factor for generating the desired impact of the GSCM practices on consumers (Saleem et al., 2018).

This study could be framed in previous works (Semana Sostenible, 2015). The study carried out a survey that attempted to tackle responsible consumption in Colombia, trying to understand the consumption habits of the inhabitants of the country. Then, the results of the current thesis are drawn from a specific market who belong to the profile 6 in the mentioned study. This profile known as “a lot of desire, little focus” (“*muchas ganas, poco foco*” in Spanish) is the 23.5% of the population of that study (population: 4,793; sample: 1.286). In fact, 97.3% of this thesis' sample belongs to that age range. This group is part of the generation of *Millennials*, born between 1981 and 1995. According to the study, they believe that they must do more to improve their home, which is the planet. They know that environmentally friendly practices must be achieved. Likewise, they are informed about how to have responsible consumption habits and strive for applying them in their social circle. Consequently, the results presented in this thesis are framed in the specific market described in this profile, aiming to validate empirically the tendencies portrayed in that study.

## **6. Conclusions**

### **6.1 Conclusions**

The motivation of this research is grounded on the significant role of psychological research approaches to understand consumers' motivations (Bangsa & Schlegelmilch, 2020) in the selection of products manufactured by companies engaged in greening their supply chains (Sarkis, 2018). Considering this necessity, the study was designed to test firstly if the consumers' perceived product performance mediates the effects of companies' GSCM practices on consumers' willingness to pay a premium and consumers' purchase intention. This mediation effect, which was supported by the study, represents one of the two psychological approaches considered: the halo effect. Secondly, this study tests if the consumers' moral orientation toward the environment moderates the effect of companies' GSCM on consumers' willingness to pay a premium, consumers' purchase intention and consumers' perceived product performance. This moderation effect, supported by the study as well, represents the second psychological approach: the protected values.

This work contributes to communication research, since few studies in this area use GSCM as one of the organizational theories to understand companies' differentiation efforts and the associated consumers' response (Smith, 2012). Additionally, this work makes a contribution to the GSCM literature, as behavioral research offers new perspectives for: (1) understanding the situations in which consumers prefer companies that are immersed in green supply chains (Sarkis, 2018), and (2) communicating information effectively about companies' sustainable practices to consumers (O'Rourke, 2014).

Finally, this research also contributes to the extant literature of GSCM in an emerging economy as the Colombian one. Some studies focus on the relationship of pro-environmental attitudes and sustainable consumption (Crissien-Borrero et al., 2016). However, although few studies contribute to consumers psychological research (Muñetón-Santa et al., 2017), none undertakes the mainstream of the supply chain studies, and specifically GSCM perspectives.

## 6.2 Limitations and Future Research

One limitation of this research refers to the expressed preferences of participants. As participants were not asked to give real money for the products, their revealed preferences could differ from their expressed preferences. This could open a possibility of future research to set experiments where participants could actually pay for the products presented. In this way, this issue of the expressed preferences could be overcome and actual behavior could be measured (Bangsa & Schlegelmilch, 2020).

Another limitation of the study is the sample used. Even if it has some advantages in terms of clearer generalizability in spite of its narrowness, and the ability to produce more accurate inferences of the population effects (Jager et al., 2017), the findings cannot be extended to other groups of the general population. Thus, future research could focus on samples of those groups that were not taken into account (i.e., different sociographic segments of the population), and the results could be compared with the ones reported in this study.

One more limitation of the study refers to the worldwide pandemic situation due to the COVID-19 that coincided with the period of data collection. Under these circumstances, priorities of consumers' attitudes and motivations could have potentially changed, and the opinions/perceptions of the participant could have differed from the period before the pandemic. This situation leads to more possibilities for research, where consumers' sustainable consumerism could be studied across time, allowing researchers to compare the differences in consumers' preferences during and after the pandemic.

Finally, another avenue for future research refers to the possibility of including, or exchanging, psychological approaches to explore consumers' sustainable consumerism. The two perspectives used in this study (i.e., protected values and the halo effect) open the opportunity for other theories in psychological research (Groening et al., 2018) to deepen the understanding of consumers at the personal level (Sarkis, 2018) in the mainstream of GSCM studies. Furthermore, these psychological perspectives could contribute to studies in the area of sustainable supply chain management (H. Kim & Lee, 2018) or circular supply chain management (De Angelis et al., 2018; Farooque et al., 2019).

## **7. Appendix A: Email Communication to Participate in the Data Collection of GSCM Practices**

**Spanish version** (version sent to the companies' emails):

“Señores

(Nombre de la compañía)

Reciban un saludo cordial.

Somos un grupo de profesores y estudiantes de la Universidad Nacional de Colombia y nos encontramos adelantando el Proyecto de Investigación “La integración con partes interesadas extra-mercado y su relación con prácticas sostenibles avanzadas en cadenas de suministro de pymes colombianas”.

Luego de consultar el Directorio de la Pyme, hemos seleccionado su empresa para participar en una encuesta en línea, que muy amablemente les solicitamos responder. En el cuestionario se indaga con respecto a algunas prácticas de sostenibilidad ambiental y social de su organización, así como sobre la relación de la empresa con una parte interesada externa.

Le agradecemos referir este correo a una persona encargada en su compañía de los temas mencionados. Los datos recolectados serán utilizados con fines exclusivamente académicos e investigativos. Los resultados serán reportados de manera general, sin usar el nombre específico de su empresa.

Consideramos que puede ser de interés para su empresa la identificación de las prácticas ambientales y sociales, y su respectivo desempeño a nivel del sector Pyme. Por consiguiente, como una forma de agradecer su participación en el estudio, le enviaremos un informe con los resultados más relevantes de esta investigación.

Muchas gracias por su tiempo y su amable atención. Quedamos atentos a cualquier inquietud que deseen compartirnos.

Enlace del Cuestionario: <https://goo.gl/forms/Y84VXGyV3ALDPgJv2>

Atentamente,

CARLOS E. MORENO M., PhD

Investigador Principal

Profesor Asociado

Departamento de Ingeniería de Sistemas e Industrial

Universidad Nacional de Colombia, sede Bogotá

Correo-e: [cemorenoma@unal.edu.co](mailto:cemorenoma@unal.edu.co)

**English translation:**

“Sirs

(Name of the company)

Receive a kind greeting.

We are a group of professors and students of the Universidad Nacional de Colombia and we are developing the research project “Integration with extra-market stakeholders and its relationship with advanced sustainable practices in supply chains of Colombian SMEs”.

After consulting the SME Directory, we have selected your company to participate in an online survey, which we kindly ask you to answer. The questionnaire is about some environmental and social sustainability practices of your organization, as well as about the company's relationship with an external stakeholder.

We thank that you forward this email to a person in charge of the mentioned topics in your company. The data collected will be used exclusively for academic and research purposes. The results will be reported in a general way, without using the specific name of your company.

We believe that the identification of environmental and social practices, and their respective performance at the level of the SME sector, may be of interest to your company. Therefore, as an incentive for your participation in the study, we will send you a report with the most relevant results of this research.

Thank you very much for your time and your kind attention. We remain attentive to any concerns you wish to share.

Questionnaire link: <https://goo.gl/forms/Y84VXGyV3ALDPgJv2>

Sincerely,

CARLOS E. MORENO M., PhD

Lead Researcher

Associate professor

Department of Systems and Industrial Engineering

Universidad Nacional de Colombia, Bogotá

E-mail: [cemorenoma@unal.edu.co](mailto:cemorenoma@unal.edu.co)



## 8. Appendix B: Survey Instrument of GSCM Practices

This appendix has the original Spanish version used in the GSCM survey and its English translation. The scale type in all items was Likert, and the operationalization was made using 1 as *never* (“Nunca”) and 5 as *always* (“Siempre”). The constructs were: Internal Environmental Management (IEM), Eco-Design (ED), Green Purchasing (GPURC) and Customer/Client Collaboration (CLIEN). This version of the instrument can be found in previous works (Quiroga-Calderón, 2018).

Construct (Item)	Questions	Adopted from
IEM1	Spanish version: Mi empresa ejecuta actividades de gestión ambiental orientadas según políticas y objetivos corporativos bien documentados. English translation: My company executes environmental management activities guided by well-documented corporate policies and objectives.	(Buisse & Verbeke, 2003; Qinghua Zhu et al., 2008)
IEM2	Spanish version: Mi empresa desarrolla auditorías ambientales de sus operaciones. English translation: My company performs environmental audits of its operations.	(Aragón Correa et al., 2005; Qinghua Zhu et al., 2008)
IEM3	Spanish version: Mi empresa ofrece incentivos a los trabajadores para mejorar el desempeño ambiental. English translation: My company offers incentives to employees for improving environmental performance.	(Buisse & Verbeke, 2003)
IEM4	Spanish version: Mi empresa ofrece programas de capacitación a los trabajadores sobre asuntos ambientales. English translation: My company offers training programs to employees about environmental issues.	(Aragón Correa et al., 2005)
IEM5	Spanish version: Mi empresa promueve la cooperación entre áreas o funciones para desarrollar mejores prácticas ambientales. English translation: My company promotes cooperation between areas or functions for developing better environmental practices.	(Qinghua Zhu et al., 2008)

IEM6	<p>Spanish version: Mi empresa promueve la participación de los empleados en actividades de planeación ambiental.</p> <p>English translation: My company promotes employees' participation in environmental planning activities.</p>	(Buysse & Verbeke, 2003; Qinghua Zhu et al., 2008)
ED1	<p>Spanish version: Mi empresa, cuando diseña un producto o servicio, se enfoca en reducir el uso de recursos (Ejemplo: energía, agua, materias primas, insumos, etc.)</p> <p>English translation: When my company designs a product or service, it takes into account the reduction of the resources it uses (e.g., energy, water, raw materials, supplies).</p>	(Qinghua Zhu et al., 2008)
ED2	<p>Spanish version: Mi empresa, cuando diseña un producto o servicio, se enfoca en reducir la generación de residuos tóxicos o peligrosos originados en los procesos de manufactura.</p> <p>English translation: When my company designs a product or service, it takes into account the reduction of the toxic and hazardous waste generation in the manufacturing processes.</p>	(Betts et al., 2015; Qinghua Zhu et al., 2008)
ED3	<p>Spanish version: Mi empresa, cuando diseña un producto o servicio, se enfoca en la reducción de emisiones, vertimientos o residuos sólidos generados en los procesos de manufactura.</p> <p>English translation: When my company designs a product or service, it takes into account the reduction of emissions, wastewater discharges and solid wastes generated in the manufacturing processes.</p>	(Betts et al., 2015)
ED4	<p>Spanish version: Mi empresa, cuando diseña un producto o servicio, se enfoca en facilitar el reciclaje, el re-uso o la re-manufactura de sus materiales, empaques, embalajes o productos al final de su vida útil.</p> <p>English translation: When my company designs a product or service, it focuses on facilitating the recycling, reusing and re-manufacturing of its materials, packaging, packing or products at the end of its lifecycle.</p>	(Betts et al., 2015; Qinghua Zhu et al., 2008)
ED5	<p>Spanish version: Mi empresa, cuando diseña un producto o servicio, se enfoca en facilitar la fácil reparación, mantenimiento o actualización de éstos, buscando aumentar su durabilidad.</p> <p>English translation: When my company designs a product or service, it takes into account their reparation, maintenance or update, seeking to increase its durability.</p>	(Betts et al., 2015)

GPURC1	<p>Spanish version: Mi empresa le comunica a su proveedor principal especificaciones de diseño del producto o servicio que incluyen aspectos ambientales.</p> <p>English translation: My company communicates to its main supplier the design specifications of the product or service that include environmental requirements.</p>	(Vachon & Klassen, 2006; Qinghua Zhu et al., 2008)
GPURC2	<p>Spanish version: Mi empresa evalúa a su proveedor principal teniendo en cuenta argumentos ambientales.</p> <p>English translation: My company evaluates its main supplier taking into account environmental criteria.</p>	(Marshall et al., 2014; Qinghua Zhu et al., 2008)
GPURC3	<p>Spanish version: Mi empresa realiza auditorías ambientales de las operaciones de su proveedor principal.</p> <p>English translation: My company conducts environmental audits of its main supplier operations.</p>	(Marshall et al., 2014; Qinghua Zhu et al., 2008)
GPURC4	<p>Spanish version: Mi empresa desarrolla actividades conjuntas con su proveedor principal para diseñar o desarrollar productos o servicios que mejoren el desempeño ambiental.</p> <p>English translation: My company develops joint activities with its main supplier to design products or services that improve environmental performance.</p>	(Qinghua Zhu et al., 2008)
GPURC5	<p>Spanish version: Mi empresa apoya a su proveedor principal en la gestión de sus operaciones (Ejemplo: aplicando Gestión de la Calidad Total, Seis Sigma, Mantenimiento Productivo Total, etc.).</p> <p>English translation: My company supports its main supplier in its operations management (e.g., applying Total Quality Management, Six Sigma, Total Productive Maintenance).</p>	(Marshall et al., 2014)
GPURC6	<p>Spanish version: Mi empresa ayuda a su proveedor clave a obtener la certificación ISO 14001 o a implementar otro sistema de gestión ambiental.</p> <p>English translation: My company helps its key supplier to obtain ISO 14001 certification or to implement another environmental management system.</p>	(Marshall et al., 2014; Qinghua Zhu et al., 2008)
GPURC7	<p>Spanish version: Mi empresa selecciona a su proveedor principal según si cuenta con la certificación ISO 14001, certificaciones equivalentes o productos con sellos verdes.</p>	(Vachon & Klassen, 2006; Qinghua Zhu et al., 2008)

	English translation: My company selects its main supplier according to whether it has ISO 14001 certification, equivalent environmental certifications or products with eco-labels.	
CLIEN1	Spanish version: Mi empresa planifica y toma decisiones en conjunto con el cliente principal sobre aspectos ambientales. English translation: My company plans and makes decisions about environmental aspects together with our main client.	(Vachon & Klassen, 2006)
CLIEN2	Spanish version: Mi empresa implementa programas de producción más limpia o de eco-eficiencia de procesos en conjunto con el cliente principal. English translation: My company implements cleaner production programs or eco-efficient processes together with our main client.	(Qinghua Zhu et al., 2008)
CLIEN3	Spanish version: Mi empresa desarrolla programas, en conjunto con el cliente principal, para la disminución del consumo de recursos durante las etapas de distribución. English translation: My company, together with our main client, develops programs to reduce the resources consumption during our product or service distribution.	(Qinghua Zhu et al., 2008)
CLIEN4	Spanish version: Mi empresa diseña productos o servicios, empaques o embalajes más amigables con el medio ambiente, en conjunto con el cliente principal. English translation: My company designs products or services, packing and packaging that are environmentally friendly, together with our main client.	(Qinghua Zhu et al., 2008)
CLIEN5	Spanish version: Mi empresa intercambia información con el cliente principal relacionada con aspectos ambientales de los productos o servicios. English translation: My company exchanges information about environmental aspects of the products or services with our main client.	(Vachon & Klassen, 2006)
CLIEN6	Spanish version: El cliente principal de mi empresa visita nuestras instalaciones para ayudarnos a mejorar el desempeño ambiental. English translation: The main client of my company visits our facilities for helping us to improve environmental performance.	(Vachon & Klassen, 2006)
CLIEN7	Spanish version: El cliente principal de mi empresa nos invita a sus instalaciones para conocer cómo se usan nuestros productos. English translation: The main client of my company invites us to their facilities to let us know how our products or services are used.	(Vachon & Klassen, 2006)

## 9. Appendix C: Email Communication to Participate in the Experiment

**Spanish version** (version sent to the participants):

“Apreciado miembro de la Comunidad UN:

Esta es una invitación para que haga parte de una investigación en la cual sus contribuciones serán de gran valor. Le pedimos que lea estas instrucciones antes de que acepte participar. Encontrará una encuesta que no tardará más de 20 minutos en completar. Usted tendrá la opción de leerla tanto en español como en inglés. Por favor, elija el idioma con el que se sienta más cómodo (arriba a la derecha en la primera pantalla de la encuesta). Su participación es voluntaria y sus respuestas se mantendrán anónimas.

Esta encuesta nos permitirá entender cómo se forman las preferencias de los consumidores cuando estos son expuestos a diferentes estímulos. Con este propósito, usted manifestará sus percepciones con respecto a tres cremas dentales nuevas en el mercado. Podrá visualizar la imagen de cada producto con su respectiva descripción, la cual será explicada por la compañía que la fabricó. Por lo tanto, recuerde que no hay respuestas correctas o incorrectas.

En agradecimiento por su tiempo, lo compensaremos de la siguiente manera. Aquellos que completen la encuesta primero, participarán en un **sorteo** por un mayor premio (los responsables del premio son Juan Pablo Loaiza Ramírez y Carlos Eduardo Moreno Mantilla), de la siguiente manera:

- los **primeros 100 participantes** harán parte de un sorteo por **\$200,000**;
- los **siguientes 100 participantes (del 101 al 200)** harán parte de un sorteo por **\$100,000**; y
- los **siguientes 100 participantes (del 201 al 300)** harán parte de un sorteo por **\$50,000**.

Link de la encuesta: [https://purdue.ca1.qualtrics.com/jfe/form/SV\\_e9YGJBzA47mSrDD](https://purdue.ca1.qualtrics.com/jfe/form/SV_e9YGJBzA47mSrDD)

Usted será contactado por email en caso de ganar alguno de los sorteos. Por favor, no diligencie la encuesta más de una vez. El envío de la encuesta será interpretado como su consentimiento para participar.

En caso de tener alguna duda sobre la investigación o el manejo de la información de los participantes, favor contactar a Juan Pablo Loaiza Ramírez a través del correo electrónico [jploaizar@unal.edu.co](mailto:jploaizar@unal.edu.co) o contactar al Profesor Carlos Eduardo Moreno Mantilla al correo [cemorenoma@unal.edu.co](mailto:cemorenoma@unal.edu.co). ¡Agradecemos su valiosa participación!

Juan Pablo Loaiza Ramírez  
Estudiante de posgrado  
Facultad de Ingeniería  
Universidad Nacional de Colombia  
Correo Electrónico: [jploaizar@unal.edu.co](mailto:jploaizar@unal.edu.co)”

**English translation:**

“Dear member of the UN community,

This is an invitation for you to be part of a research project in which your contributions will be greatly appreciated. We ask that you read these guidelines before agreeing to be part of this research project. There will be a survey that should take no more than 20 minutes to complete. You will have the option of reading it either in Spanish or English. Please, pick the language with which you feel most comfortable (top right on the first screen of the survey). Participation is voluntary and responses will be kept anonymous.

This survey will allow us to understand how consumer preferences are formed when they are exposed to different stimuli. For this purpose, you will express your perceptions regarding three brand new available toothpastes. You can view the image of each product with its corresponding description, which will be explained by the company that manufactured it. Therefore, remember that there are no right or wrong answers.

In appreciation of your time, we will compensate you as follows. Those who complete the survey first will automatically be entered into a **draw** for higher compensation (the people in charge of the draws are Juan Pablo Loaiza Ramírez and Carlos Eduardo Moreno Mantilla):

- the **first 100 respondents** will participate for **\$57 USD (\$200,000 COP)**;

- the **next 100 respondents (from respondent 101 to 200)** will participate for **\$29 USD (\$100,000 COP)**; and
- the **next 100 respondents (from respondent 201 to 300)** will participate for **\$14 USD (\$50,000 COP)**.

Survey link: [https://purdue.ca1.qualtrics.com/jfe/form/SV\\_e9YGJBzA47mSrDD](https://purdue.ca1.qualtrics.com/jfe/form/SV_e9YGJBzA47mSrDD)

You will be contacted by email if you win any of the prizes. Please, do not take the survey more than once. Submission of the completed survey will be interpreted as your informed consent to participate.

If you have any questions about the research or the treatment of participants data, please contact Juan Pablo Loaiza Ramírez via email at [jploaizar@unal.edu.co](mailto:jploaizar@unal.edu.co), or Professor Carlos Eduardo Moreno Mantilla at [cemorenoma@unal.edu.co](mailto:cemorenoma@unal.edu.co). Thank you for your participation!

Juan Pablo Loaiza Ramírez

Graduate Student

School of Engineering

Universidad Nacional de Colombia

Email: [jploaizar@unal.edu.co](mailto:jploaizar@unal.edu.co)



## 10. Appendix D: Experimental Stimuli and Instruments

This appendix has the Spanish and the English versions of the experiment. Both languages were available to the participants, and they had the opportunity to choose the one they felt most comfortable with. In each section of this appendix, the Spanish version will be displayed first. In the English version of every section, all the instruments used will be detailed.

### 10.1 Introduction

#### Spanish version:

Apreciado participante,

Esta es una invitación para que haga parte de una investigación en cual sus contribuciones serán de gran valor. Le pedimos que lea estas instrucciones antes de aceptar ser parte de este proyecto. Encontrará una encuesta que no tardará más de 20 minutos para completar. Usted tendrá la opción de leerla tanto en español como en inglés. Por favor, elija el idioma con el que se sienta más cómodo (arriba a la derecha en esta pantalla). Su participación es voluntaria y sus respuestas se mantendrán anónimas. Lo que sea que comparta o exprese, se mantendrá de manera confidencial. Una vez los resultados sean presentados —ya sea por medio de artículos o eventos públicos—, no se utilizará ningún tipo de información que pueda revelar su identidad.

En agradecimiento por su tiempo, lo compensaremos de la siguiente manera. Aquellos que completen la encuesta primero automáticamente participarán en un sorteo por un mayor premio (los responsables del premio son Juan Pablo Loaiza Ramírez y Carlos Eduardo Moreno Mantilla):

- los primeros 100 participantes harán parte de un sorteo por \$200,000;
- los siguientes 100 participantes (del 101 al 200) harán parte de un sorteo por \$100,000; y
- los siguientes 100 participantes (del 201 al 300) harán parte de un sorteo por \$50,000.

Usted será contactado por email en caso de ganar alguno de los sorteos. Por favor, no diligencie la encuesta más de una vez. El envío de la encuesta será interpretado como su consentimiento para participar.

En caso de tener alguna duda sobre la investigación o el manejo de la información de los participantes, favor contactar a Juan Pablo Loaiza Ramírez a través del correo electrónico [jploaizar@unal.edu.co](mailto:jploaizar@unal.edu.co) o contactar al Profesor Carlos Eduardo Moreno Mantilla al correo [cemorenoma@unal.edu.co](mailto:cemorenoma@unal.edu.co). ¡Agradecemos su participación!

Juan Pablo Loaiza Ramírez  
Estudiante de posgrado  
Facultad de Ingeniería  
Universidad Nacional de Colombia  
Correo Electrónico: [jploaizar@unal.edu.co](mailto:jploaizar@unal.edu.co)

**English version:**

Dear participant,

This is an invitation for you to be part of a research project in which your contributions will be greatly appreciated. We ask that you read these guidelines before agreeing to be part of this research project. There will be a survey that should take no more than 20 minutes to complete. You will have the option of reading it either in Spanish or English. Please, pick the language with which you feel most comfortable (top right on this screen). Participation is voluntary and responses will be kept anonymous. Anything you share or express will remain confidential. Whenever the results are presented—either through articles or public events—no information that might reveal your identity will be utilized.

In appreciation of your time, we will compensate you as follows. Those who complete the survey first will automatically be entered into a draw for higher compensation (the draw responsables are Juan Pablo Loaiza Ramírez and Carlos Eduardo Moreno Mantilla):

- the first 100 respondents will participate for \$57 USD (\$200,000 COP);
- the next 100 respondents (from respondent 101 to 200) will participate for \$29 USD (\$100,000 COP); and
- the next 100 respondents (from respondent 201 to 300) will participate for \$14 USD (\$50,000 COP).

You will be contacted by email if you win any of the prizes. Please, do not take the survey more than once. Submission of the completed survey will be interpreted as your informed consent to participate.

If you have any questions about the research or the treatment of participants data, please contact Juan Pablo Loaiza Ramírez via email at [jploaizar@unal.edu.co](mailto:jploaizar@unal.edu.co), or Professor Carlos Eduardo Moreno Mantilla at [cemorenoma@unal.edu.co](mailto:cemorenoma@unal.edu.co). Thank you for your participation!

Juan Pablo Loaiza Ramírez  
 Graduate Student  
 School of Engineering  
 Universidad Nacional de Colombia  
 Email: [jploaizar@unal.edu.co](mailto:jploaizar@unal.edu.co)

## 10.2 Study Description

### Spanish version:

En la siguiente encuesta, verá imágenes de tres cremas dentales nuevas disponibles. La descripción de cada crema dental será explicada por la compañía que la fabricó. Particularmente, cada producto está descrito en términos de las prácticas medioambientales desplegadas. Queremos aprender de sus opiniones, percepciones, y lo que opina sobre las cremas dentales. No hay respuestas correctas o incorrectas. Por favor, responda las preguntas de manera tan sincera como sea posible.

### English version:

Description	Adopted from
In the following survey, you will see images of three brand new toothpastes available. The description of each toothpaste will be explained by the company that manufactured it. Particularly, each product is described in terms of the environmental practices deployed. We want to learn about your views, perceptions, and what you think of these toothpastes. There are no right or wrong answers. Please, answer the questions as sincerely as possible.	(Strohmeier & Tenenbaum, 2019)

## 10.3 Conditions – Absolute Measures

In this section of the experiment, one condition was presented at a time. As described in section 3.2 *Experimental Study and Procedure*, the order of the conditions was randomly assigned to every participant. In the table below, the image, the title and the description of every condition are detailed. Since in the Spanish and the English versions of the experiment the image and the title were identical, the Spanish version will depict the description only.

**Spanish version:**

<b>VISIVA</b>	<b>NEVINO</b>	<b>KITERA</b>
<p>Nuestra compañía está buscando posicionarse en el mercado. Nos esforzamos por manufacturar el mejor producto. Sin embargo, nuestra compañía no piensa que es necesario hacer un esfuerzo para reducir emisiones, vertimientos y residuos sólidos, incluyendo residuos tóxicos y peligrosos en los procesos de manufactura de este producto. Del mismo modo, no consideramos necesario que el diseño del producto facilite su proceso de reciclaje, reutilización y remanufactura, incluyendo materiales, empaques y embalajes al final de su ciclo de vida. Por lo tanto, nuestra compañía no diseña el producto a través de actividades conjuntas con nuestro proveedor principal, motivados por la mejora de nuestro desempeño medioambiental. Las auditorías medioambientales de las operaciones de este proveedor principal tampoco</p>	<p>Nuestra compañía está buscando posicionarse en el mercado. Nos esforzamos por elaborar el mejor producto. Por lo tanto, nuestra compañía piensa que es necesario hacer un esfuerzo para reducir emisiones, vertimientos y residuos sólidos, incluyendo residuos tóxicos y peligrosos en los procesos de manufactura de este producto. Del mismo modo, consideramos necesario que el diseño del producto facilite su proceso de reciclaje, reutilización y remanufactura, incluyendo materiales, empaques y embalajes al final de su ciclo de vida. Sin embargo, nuestra compañía no diseña el producto a través de actividades conjuntas con nuestro proveedor principal, motivados por la mejora de nuestro desempeño medioambiental. Las auditorías medioambientales de las operaciones de este proveedor principal tampoco</p>	<p>Nuestra compañía está buscando posicionarse en el mercado. Nos esforzamos por elaborar el mejor producto. Por lo tanto, nuestra compañía piensa que es necesario hacer un esfuerzo para reducir emisiones, vertimientos y residuos sólidos, incluyendo residuos tóxicos y peligrosos en los procesos de manufactura de este producto. Del mismo modo, consideramos necesario que el diseño del producto facilite su proceso de reciclaje, reutilización y remanufactura, incluyendo materiales, empaques y embalajes al final de su ciclo de vida. Además, nuestra compañía diseña el producto a través de actividades conjuntas con nuestro proveedor principal, motivados por la mejora de nuestro desempeño medioambiental. Las auditorías medioambientales de las operaciones de este proveedor principal también son importantes para</p>

<p>son importantes para nosotros. A pesar de ello, procuramos entregar nuestro producto a tiempo. En este orden de ideas, nuestro objetivo es construir un nombre de marca sólido.</p>	<p>son importantes para nosotros. A pesar de ello, procuramos entregar nuestro producto a tiempo. En este orden de ideas, nuestro objetivo es construir un nombre de marca sólido.</p>	<p>nosotros. Adicionalmente, procuramos entregar nuestro producto a tiempo. En este orden de ideas, nuestro objetivo es construir un nombre de marca sólido.</p>
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**English version:**

Condition 1	Condition 2	Condition 3
		
<p><b>VISIVA</b></p>	<p><b>NEVINO</b></p>	<p><b>KITERA</b></p>
<p>Our company is looking to position itself in the market. We strive to manufacture the best product. However, our company does not think it is</p>	<p>Our company is looking to position itself in the market. We strive to manufacture the best product. Consequently, our company does think it is</p>	<p>Our company is looking to position itself in the market. We strive to manufacture the best product. Consequently, our company does think it is</p>

<p>necessary to make an effort to reduce emissions, wastewater discharges, and solid wastes, including toxic and hazardous wastes in the manufacturing processes of this product. Likewise, we do not consider it necessary for the product design to facilitate recycling, reusing, and remanufacturing of the product itself, including materials, packaging and packing at the end of its lifecycle. Consequently, our company does not design the product through joint activities with our main supplier, motivated by improving our environmental performance. Environmental audits of the operations of this main supplier are not important to us neither. Despite this, we strive for delivering our product on time. In that regard, our aim is to build a strong brand name.</p>	<p>necessary to make an effort to reduce emissions, wastewater discharges, and solid wastes, including toxic and hazardous wastes in the manufacturing processes of this product. Likewise, we do consider it necessary for the product design to facilitate recycling, reusing, and remanufacturing of the product itself, including materials, packaging and packing at the end of its lifecycle. However, our company does not design the product through joint activities with our main supplier, motivated by improving our environmental performance. Environmental audits of the operations of this main supplier are not important to us neither. Despite this, we strive for delivering our product on time. In that regard, our aim is to build a strong brand name.</p>	<p>necessary to make an effort to reduce emissions, wastewater discharges, and solid wastes, including toxic and hazardous wastes in the manufacturing processes of this product. Likewise, we do consider it necessary for the product design to facilitate recycling, reusing, and remanufacturing of the product itself, including materials, packaging and packing at the end of its lifecycle. Furthermore, our company does design the product through joint activities with our main supplier, motivated by improving our environmental performance. Environmental audits of the operations of this main supplier are important to us as well. In addition, we strive for delivering our product on time. In that regard, our aim is to build a strong brand name.</p>
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After the presentation of every condition, the participants were asked four sets of questions/affirmations, as explained in section 3.5 *Instruments and Measures*. Those sets of questions are detailed in the next table. Each item will be described in terms of the construct it was part of, the scale type (e.g., Likert) used, its operationalization (i.e., extreme points in the scale), and

the study the item was adapted from. It is worth mentioning that these items were randomized (i.e., the four statements and the two questions) in the “survey” of each participant.

**Spanish version:**

Construct	Item
Por favor indique qué tan de acuerdo está con las siguientes opciones:	
Willingness to pay a premium (1)	Comprar este producto me parece una buena idea, aunque cueste más que otras marcas.
Willingness to pay a premium (2)	Compraría este producto incluso si otras marcas redujeran sus precios.
Perceived environmental friendliness (1)	Este es un producto amigable con el medio ambiente.
Perceived environmental friendliness (2)	Este producto no le causa daño al medio ambiente.
Perceived product performance (1)	Este es un producto de alta calidad.
Perceived product performance (2)	Este producto limpia y protege los dientes efectivamente.
Por favor indique su nivel de probabilidad en relación con las siguientes preguntas:	
Purchase intention (1)	¿Qué tan probable resultaría que usted compre este producto?
Purchase intention (2)	Dada la información mostrada, ¿qué tan probable resultaría que usted compre este producto si necesitara una nueva crema dental?

**English version:**

Construct	Item	Scale Type	Operationalization	Adopted from
Please indicate your degree of agreement with the following statements:				
Willingness to pay a premium (1)	Buying this product seems a good idea to me even if it costs more than other brands.	Likert	Strongly disagree (1) – Strongly agree (7)	(G. Kim, 2015)

Willingness to pay a premium (2)	I would still buy this product even if other brands reduced their prices.	Likert	Strongly disagree (1) – Strongly agree (7)	(G. Kim, 2015)
Perceived environmental friendliness (1)	This is an environmentally friendly product.	Likert	Strongly disagree (1) – Strongly agree (7)	(Venhoeven et al., 2016)
Perceived environmental friendliness (2)	This product is not harmful to the environment.	Likert	Strongly disagree (1) – Strongly agree (7)	(Mohd Noor et al., 2016)
Perceived product performance (1)	This is a product of high quality.	Likert	Strongly disagree (1) – Strongly agree (7)	(Venhoeven et al., 2016)
Perceived product performance (2)	This product cleans and protects the teeth effectively.	Likert	Strongly disagree (1) – Strongly agree (7)	(Leroi-Werelds et al., 2017)
Please indicate your degree of likelihood regarding the following questions:				
Purchase intention (1)	How likely is that you would buy this product?	Likert	Very unlikely (1) – Very likely (7)	(G. Kim, 2015)
Purchase intention (2)	Given the information shown, how likely is it that you would purchase this product if you needed a new toothpaste?	Likert	Very unlikely (1) – Very likely (7)	(G. Kim, 2015)

## 10.4 Paired Comparison and Ranking Tasks

After the three conditions were presented, the participants were assigned to three paired comparisons and one ranking tasks, as explained in section 3.2 *Experimental Study and Procedure*. In the paired comparison tasks, two out of the three conditions were presented simultaneously; and in the ranking task, the three conditions were presented simultaneously. The image, the title and the description of every condition in these tasks were depicted exactly as in the beginning of the previous section, 10.3 *Conditions – Absolute Measures*. Then, the questions related to both the paired

comparison and the ranking tasks will be presented in the next table. It is worth mentioning that these questions were randomized in the “survey” of each participant.

**Spanish version:**

Construct	Item
	¿Qué piensa? Considere que usted tuviera que escoger una de las alternativas presentadas arriba. ¿Cuál elegiría?
Willingness to pay a premium	¿Qué producto compraría, incluso si cuesta más?
Perceived environmental friendliness	¿Qué producto es más amigable con el medio ambiente?
Perceived product performance	¿Qué producto limpiaría y protegería sus dientes más efectivamente?
Purchase intention	¿Qué producto consideraría comprar?

**English version:**

Construct	Question	Scale Type	Operationalization	Adopted from
What do you think? Consider you had to pick one of the alternatives presented above. Which one would you choose?				
Willingness to pay a premium	Which product would you buy, even if it costs more?	Dichotomous	(The name of two out of the three products in the case of the paired comparison task, and the three product names for the ranking task)	(G. Kim, 2015)
Perceived environmental friendliness	Which product is environmentally friendlier?	Dichotomous		(Venhoeven et al., 2016)
Perceived product performance	Which product would clean and protect your teeth more effectively?	Dichotomous		(Leroi-Werelds et al., 2017)
Purchase intention	Which product would you consider purchasing?	Dichotomous		(G. Kim, 2015)

## 10.5 Protected Values Scales

The protected values scale, as explained in section 3.5 *Instruments and Measures*, was divided into two subscales. The subscales tackled an indirect and a direct approach for measuring protected values. The next table shows the introductory paragraphs for both subscales and the items used, which were all adapted from previous works (Gibson et al., 2013). It is worth mentioning that these items were randomized in the “survey” of each participant.

### Spanish version:

Construct	Operationalization/Item
	Ya que la producción de las empresas depende de bienes y servicios medioambientales, las empresas tienen un incentivo para afectar el medio ambiente. ¿Cuál es su opinión acerca de que las empresas usen procesos de manufactura que tengan un impacto negativo en el medio ambiente? Por favor, elija la categoría apropiada de la siguiente manera:
Protected Values: Indirect Measures (Moral)	Muy inmoral (1) – Muy moral (7)
Protected Values: Indirect Measures (Praiseworthy)	Para nada digno de elogio (1) – Muy digno de elogio (7)
Protected Values: Indirect Measures (Outrageous)	Para nada indignante (1) – Muy indignante (7)
Protected Values: Indirect Measures (Acceptable)	Para nada aceptable (1) – Muy aceptable (7)
	Las empresas pueden afectar el medio ambiente para alcanzar sus objetivos. Algunas personas ven dichas acciones como una violación a los derechos intrínsecos del medio ambiente; otras personas ven esta situación como el derecho que tienen las empresas de satisfacer sus intereses. ¿Qué piensa usted del valor del medio ambiente en dicha situación? El medio ambiente es algo...
Protected Values: Direct Measures (Sacrifice)	... que yo no debería sacrificar, sin importar los beneficios (materiales o de otro tipo).
Protected Values: Direct Measures (Cost-Benefit Analysis)	... para lo cual creo que es correcto comparar los beneficios y los costos monetarios de diferentes políticas o iniciativas para elegir la mejor alternativa.
Protected Values: Direct Measures (Monetary Terms)	... que no puede medirse en términos monetarios.

Protected Values: Direct Measures (Flexibility)	... en lo cual puedo ser flexible si la situación lo amerita.
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**English version:**

Construct	Item	Scale Type	Operationalization
Due to the fact that the companies' production depends on the use of environmental goods and services, companies have an incentive to affect the environment. What is your opinion about companies using manufacturing process that have a negative impact on the environment? Please choose the appropriate category as follows:			
Protected Values: Indirect Measures (Moral)	<b>Not Applicable</b>	Likert	Very immoral (1) – Very moral (7)
Protected Values: Indirect Measures (Praiseworthy)	<b>Not Applicable</b>	Likert	Not at all praiseworthy (1) – Very praiseworthy (7)
Protected Values: Indirect Measures (Outrageous)	<b>Not Applicable</b>	Likert	Not at all outrageous (1) – Very outrageous (7)
Protected Values: Indirect Measures (Acceptable)	<b>Not Applicable</b>	Likert	Not at all acceptable (1) – Very acceptable (7)
Companies can affect the environment to achieve their goals. Some people view such actions as a violation of the intrinsic rights of the environment; other people regard it as the right that companies have to accomplish their objectives. What do you think of the value of the environment in such situation? The environment is something...			
Protected Values: Direct Measures (Sacrifice)	... that one should not sacrifice, no matter what the (material or other) benefits.	Likert	Strongly disagree (1) – Strongly agree (7)
Protected Values: Direct Measures (Cost-Benefit Analysis)	... for which I think it is right to compare the economic benefits and costs of different policies or initiatives to choose the best alternative.	Likert	Strongly disagree (1) – Strongly agree (7)

Protected Values: Direct Measures (Monetary Terms)	... that cannot be measured in monetary terms.	Likert	Strongly disagree (1) – Strongly agree (7)
Protected Values: Direct Measures (Flexibility)	... about which I can be flexible if the situation demands it.	Likert	Strongly disagree (1) – Strongly agree (7)

## 10.6 Sociodemographic Section

Spanish version:

Construct	Question	Operationalization
Sociodemographic	¿Qué edad tiene (en años)?	<b>Not Applicable</b>
Sociodemographic	Seleccione su género:	(1) Masculino (2) Femenino (3) Otro (space to specify)
Sociodemographic	¿Cuál es su máximo nivel de educación terminado?	(1) Ninguno (2) Preescolar (3) Básica primaria (1° - 5°) (4) Básica secundaria (6° - 9°) (5) Educación media (10° - 11°) (6) Técnico (7) Tecnólogo (8) Universitario (9) Especialidad (10) Maestría (11) Doctorado
Sociodemographic	¿A cuál sede pertenece?	(1) Amazonía (2) Bogotá (3) Caribe (4) De La Paz (5) Manizales (6) Medellín (7) Orinoquía (8) Palmira (9) Tumaco
Sociodemographic	¿Qué relación tiene usted con la universidad? Puede escoger más de una opción de ser necesario.	<ul style="list-style-type: none"> <li>• Estudiante</li> <li>• Estudiante internacional</li> <li>• Profesor</li> <li>• Personal administrativo</li> <li>• Exalumno</li> <li>• Profesor pensionado</li> <li>• Contrato de prestación de servicios</li> <li>• Otro (space to specify)</li> </ul>

Sociodemographic	¿Cuál fue el último programa académico que usted estudió en la universidad? ( <i>Question shown if the participant reported to be “Former student”</i> )	(List of academic programs at the national level in the Universidad Nacional de Colombia)
Sociodemographic	¿Cuál es su programa académico actual? ( <i>Question shown if the participant reported to be “Student”</i> )	(List of academic programs at the national level in the Universidad Nacional de Colombia)
Sociodemographic	¿Cuál es su porcentaje de progreso en su programa académico (reportado en el SIA)? Por ejemplo: 26.7 (Use punto como separador decimal) ( <i>Question shown if the participant reported to be “Student”</i> )	<b>Not Applicable</b>
Sociodemographic	¿Cuál es su estrato socioeconómico?	(1) Sin estrato (2) 1 (3) 2 (4) 3 (5) 4 (6) 5 (7) 6 (8) No sabe
Sociodemographic	¿Cuál es el nivel de ingreso mensual de su hogar? Medido en Salarios Mínimos Mensuales Legales Vigentes (SMMLV): \$877,803 COP	(1) Menos de 1 SMMLV: menos de \$877,803 COP (2) De 1 a menos de 2 SMMLV: entre \$877,803 y \$1,755,606 COP (3) De 2 a menos de 3 SMMLV: entre \$1,755,606 y \$2,633,409 COP (4) De 3 a menos de 4 SMMLV: entre \$2,633,409 y \$3,511,212 COP (5) De 4 a menos de 5 SMMLV: entre \$3,511,212 y \$4,389,015 COP (6) De 5 a menos de 6 SMMLV: entre \$4,389,015 y \$5,266,818 COP (7) De 6 a menos de 7 SMMLV: entre \$5,266,818 y \$6,144,621 COP (8) Más de 7 SMLMV: más de \$6,144,621 COP
Sociodemographic	¿Cuál es el número de personas en su hogar?	<b>Not Applicable</b>

Manipulation check	¿Usted recuerda haber comprado algún producto amigable con el medio ambiente durante sus últimas 10 compras?	<ol style="list-style-type: none"> <li>(1) Definitivamente sí</li> <li>(2) Probablemente sí</li> <li>(3) Pueda que sí o pueda que no</li> <li>(4) Probablemente no</li> <li>(5) Definitivamente no</li> </ol>
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**English version:**

Construct	Question	Scale Type	Operationalization
Sociodemographic	How old are you (in years)?	Open-ended	<b>Not Applicable</b>
Sociodemographic	Select your gender:	Nominal	<ol style="list-style-type: none"> <li>(1) Male</li> <li>(2) Female</li> <li>(3) Other (space to specify)</li> </ol>
Sociodemographic	What is your highest level of completed education?	Nominal	<ol style="list-style-type: none"> <li>(1) None</li> <li>(2) Preschool</li> <li>(3) Primary school (1° - 5°)</li> <li>(4) Middle school (6° - 9°)</li> <li>(5) High school (10° - 11°)</li> <li>(6) Technical</li> <li>(7) Technological</li> <li>(8) Undergraduate</li> <li>(9) Specialization</li> <li>(10) Master's degree</li> <li>(11) Doctorate</li> </ol>
Sociodemographic	What branch do you belong to?	Nominal	<ol style="list-style-type: none"> <li>(1) Amazonía</li> <li>(2) Bogotá</li> <li>(3) Caribe</li> <li>(4) De La Paz</li> <li>(5) Manizales</li> <li>(6) Medellín</li> <li>(7) Orinoquía</li> <li>(8) Palmira</li> <li>(9) Tumaco</li> </ol>
Sociodemographic	What is your relationship with the university? You can select more than one option if it is necessary.	Multiple choice	<ul style="list-style-type: none"> <li>• Student</li> <li>• International Student</li> <li>• Professor</li> <li>• Administrative staff</li> <li>• Former student</li> <li>• Retired professor</li> <li>• Service contract</li> <li>• Other (space to specify)</li> </ul>

Sociodemographic	What was the last academic program that you studied in the university? ( <i>Question shown if the participant reported to be "Former student"</i> )	Nominal	(List of academic programs at the national level in the Universidad Nacional de Colombia)
Sociodemographic	What is your current academic program? ( <i>Question shown if the participant reported to be "Student"</i> )	Nominal	(List of academic programs at the national level in the Universidad Nacional de Colombia)
Sociodemographic	What is the percent of progress in your academic program (reported by the SIA)? For example: 26.7 (Use point as decimal separator) ( <i>Question shown if the participant reported to be "Student"</i> )	Open-ended	<b>Not Applicable</b>
Sociodemographic	What is your socioeconomic status?	Nominal	(1) No status (2) 1 (3) 2 (4) 3 (5) 4 (6) 5 (7) 6 (8) Does not know
Sociodemographic	What is the monthly average income of your household? Measured in Statutory Monthly Minimum Wage (SMMW): \$877,803 COP (264 USD approximately)	Nominal	(1) Less than 1 SMMW: less than \$877,803 COP (264 USD approx.) (2) From 1 to less than 2 SMMW: between \$877,803 and \$1,755,606 COP (between 264 and 527 USD approx.) (3) From 2 to less than 3 SMMW: between \$1,755,606 and \$2,633,409 COP (between 527 and 790 USD approx.) (4) From 3 to less than 4 SMMW: between \$2,633,409 and \$3,511,212 COP (between 790 and 1,054 USD approx.) (5) From 4 to less than 5 SMMW: between \$3,511,212 and \$4,389,015 COP (between 1,054 and 1,317 USD approx.)

			(6) From 5 to less than 6 SMMW: between \$4,389,015 and \$5,266,818 COP (between 1,317 and 1,580 USD approx.) (7) From 6 to less than 7 SMMW: between \$5,266,818 and \$6,144,621 COP (between 1,580 and 1,844 USD approx.) (8) More than 7 SMMW: more than \$6,144,621 COP (more than 1,844 USD approx.)
Sociodemographic	What is the number of people in your household?	Open-ended	<b>Not Applicable</b>
Manipulation check	Do you remember if you bought any environmentally friendly product during your last 10 purchases?	Nominal	(1) Definitely yes (2) Probably yes (3) Might or might not (4) Probably not (5) Definitely not

## 10.7 Closing message

### Spanish version:

Gracias por completar esta encuesta. Queremos recordarle que, en agradecimiento por su tiempo, estaremos compensándolo de la siguiente manera. Aquellos que completen la encuesta primero automáticamente participarán en un sorteo por un mayor premio:

- los primeros 100 participantes harán parte de un sorteo por \$200,000;
- los siguientes 100 participantes (del 101 al 200) harán parte de un sorteo por \$100,000; y
- los siguientes 100 participantes (del 201 al 300) harán parte de un sorteo por \$50,000.

Para poder contactarlo, por favor escriba su correo electrónico abajo.

Como ya se mencionó, en caso de tener alguna duda sobre la investigación o el manejo de la información de los participantes, favor contactar a Juan Pablo Loaiza Ramírez a través del correo electrónico [jploaizar@unal.edu.co](mailto:jploaizar@unal.edu.co) o contactar al Profesor Carlos Eduardo Moreno Mantilla al correo [cemorenoma@unal.edu.co](mailto:cemorenoma@unal.edu.co).

Nuevamente, ¡gracias por su participación!

Juan Pablo Loaiza Ramírez

Estudiante de posgrado

Facultad de Ingeniería  
Universidad Nacional de Colombia  
Correo Electrónico: [jploaizar@unal.edu.co](mailto:jploaizar@unal.edu.co)

Su correo electrónico (cuenta Unal): \_\_\_\_\_

**English version:**

Thanks for completing the survey. We would like to remind you that, in appreciation of your time, we will compensate you the following way. Those who complete the survey first will automatically be entered into a draw for higher compensation:

- the first 100 respondents will participate for \$57 USD (\$200,000 COP);
- the next 100 respondents (from respondent 101 to 200) will participate for \$29 USD (\$100,000 COP); and
- the next 100 respondents (from respondent 201 to 300) will participate for \$14 USD (\$50,000 COP).

To contact you, please type your email address below.

As mentioned before, if you have any questions about the research or the treatment of participants data, please contact Juan Pablo Loaiza Ramírez via email at [jploaizar@unal.edu.co](mailto:jploaizar@unal.edu.co), or Professor Carlos Eduardo Moreno Mantilla at [cemorenoma@unal.edu.co](mailto:cemorenoma@unal.edu.co).

Thanks again for your participation!

Juan Pablo Loaiza Ramírez  
Graduate Student  
School of Engineering  
National University of Colombia  
Email: [jploaizar@unal.edu.co](mailto:jploaizar@unal.edu.co)

Your email address (Unal account): \_\_\_\_\_

# 11. Appendix E: Full Results of the Regression Analysis

As mentioned in *Results*, this appendix aims to detail the regression analyses used in this study. The appendix will be divided into two parts. The first part accounts for the mediation analysis, which contains the tables of the models summary and the direct, indirect and total effects. The second part accounts for the moderations analysis. This part will contain four tables: 1) the models summary of the conditional effects, 2) the conditional effects themselves, 3) the models summary of the effects of the moderator on the dependent variables, and 4) the effects of the moderator on the dependent variables themselves.

## 11.1 Mediation Analysis

Table 11-1. Mediation analysis performed in the SPSS macro MEMORE. Part I: Models summary

Mediator (1st instance)	Mediator (2nd instance)	Dependent Variable (1 <sup>st</sup> instance)	Dependent Variable (2 <sup>nd</sup> instance)	R	R <sup>2</sup>	MSE	F	df1	df2	p-value
C3_PPP	C2_PPP	C3_WPP	C2_WPP	0.5032	0.2532	1.3343	56.7793	2	335	0.0000
C2_PPP	C1_PPP	C2_WPP	C1_WPP	0.4225	0.1785	2.0295	36.4068	2	335	0.0000
C3_PPP	C1_PPP	C3_WPP	C1_WPP	0.5231	0.2737	2.7312	63.1058	2	335	0.0000
C3_PPP	C2_PPP	C3_PI	C2_PI	0.5206	0.2710	1.4778	62.2619	2	335	0.0000
C2_PPP	C1_PPP	C2_PI	C1_PI	0.4666	0.2177	2.2858	46.6096	2	335	0.0000
C3_PPP	C1_PPP	C3_PI	C1_PI	0.5520	0.3047	2.4799	73.3955	2	335	0.0000

*Notes:* Every row represents the summary of a two-instances repeated-measures linear regression, as suggested in previous works (Amanda K Montoya & Hayes, 2016).

$R$  (strength of the linear association between the variables),  $R^2$  (percent of the variability of the dependent variable explained by the linear model),  $MSE$  (Mean Squared Error),  $F$  (statistic),  $df$  (degrees of freedom),  $p$ -value (significance).

Table 11-2. Mediation analysis performed in the SPSS macro MEMORE. Part II: Direct, indirect and total effects

Mediator (1 <sup>st</sup> instance)	Mediator (2 <sup>nd</sup> instance)	Dependent Variable (1 <sup>st</sup> instance)	Dependent Variable (2 <sup>nd</sup> instance)	c'	SE	t	df	P-value	LLCI	ULCI	a	SE	t	P-value	LLCI	ULCI
C3_PPP	C2_PPP	C3_WPP	C2_WPP	0.7109	0.0684	10.3869	335	0.0000	0.5763	0.8455	0.4364	0.0550	7.9307	0.0000	0.3282	0.5446
C2_PPP	C1_PPP	C2_WPP	C1_WPP	1.3042	0.0856	15.2304	335	0.0000	1.1357	1.4726	0.5488	0.0650	8.4460	0.0000	0.4210	0.6766
C3_PPP	C1_PPP	C3_WPP	C1_WPP	1.8871	0.1105	17.0801	335	0.0000	1.6698	2.1045	0.9852	0.0765	12.8706	0.0000	0.8346	1.1358
C3_PPP	C2_PPP	C3_PI	C2_PI	0.7965	0.0720	11.0584	335	0.0000	0.6548	0.9382	0.4364	0.0550	7.9307	0.0000	0.3282	0.5446
C2_PPP	C1_PPP	C2_PI	C1_PI	1.2374	0.0909	13.6169	335	0.0000	1.0587	1.4162	0.5488	0.0650	8.4460	0.0000	0.4210	0.6766
C3_PPP	C1_PPP	C3_PI	C1_PI	1.9843	0.1053	18.8471	335	0.0000	1.7772	2.1914	0.9852	0.0765	12.8706	0.0000	0.8346	1.1358

Mediator (1 <sup>st</sup> instance)	Mediator (2 <sup>nd</sup> instance)	Dependent Variable (1 <sup>st</sup> instance)	Dependent Variable (2 <sup>nd</sup> instance)	b	SE	t	P-value	LLCI	ULCI	ab	BootSE	BootLLCI	BootULCI
C3_PPP	C2_PPP	C3_WPP	C2_WPP	0.6625	0.0622	10.6507	0.0000	0.5401	0.7848	0.2891	0.0496	0.1976	0.3909
C2_PPP	C1_PPP	C2_WPP	C1_WPP	0.5509	0.0664	8.2960	0.0000	0.4202	0.6815	0.3023	0.0523	0.2057	0.4071
C3_PPP	C1_PPP	C3_WPP	C1_WPP	0.7302	0.0652	11.1976	0.0000	0.6019	0.8584	0.7194	0.0732	0.5790	0.8637
C3_PPP	C2_PPP	C3_PI	C2_PI	0.7205	0.0655	11.0067	0.0000	0.5917	0.8493	0.3144	0.0557	0.2128	0.4298
C2_PPP	C1_PPP	C2_PI	C1_PI	0.6752	0.0705	9.5812	0.0000	0.5366	0.8138	0.3705	0.0630	0.2524	0.4989
C3_PPP	C1_PPP	C3_PI	C1_PI	0.7457	0.0621	12.0014	0.0000	0.6235	0.8679	0.7347	0.0761	0.5898	0.8896

Mediator (1 <sup>st</sup> instance)	Mediator (2 <sup>nd</sup> instance)	Dependent Variable (1 <sup>st</sup> instance)	Dependent Variable (2 <sup>nd</sup> instance)	c	SE	t	df	p-value	LLCI	ULCI
C3_PPP	C2_PPP	C3_WPP	C2_WPP	1.0000	0.0725	13.7956	337	0.0000	0.8574	1.1426
C2_PPP	C1_PPP	C2_WPP	C1_WPP	1.6065	0.0852	18.8464	337	0.0000	1.4388	1.7742

C3_PPP	C1_PPP	C3_WPP	C1_WPP	2.6065	0.1052	24.7859	337	0.0000	2.3997	2.8134
C3_PPP	C2_PPP	C3_PI	C2_PI	1.1109	0.0772	14.3881	337	0.0000	0.9591	1.2628
C2_PPP	C1_PPP	C2_PI	C1_PI	1.6080	0.0927	17.3463	337	0.0000	1.4256	1.7903
C3_PPP	C1_PPP	C3_PI	C1_PI	2.7189	0.1024	26.5476	337	0.0000	2.5175	2.9204

*Notes:* Every row represents a two-instances repeated-measures linear regression, as suggested in previous works (Amanda K Montoya & Hayes, 2016).

$c'$  (direct effect),  $SE$  (Standard Error),  $t$  (statistic),  $df$  (degrees of freedom),  $p$ -value (significance),  $LLCI$  (95% Lower Limit Confidence Interval),  $ULCI$  (95% Upper Limit Confidence Interval),  $a$  (partial indirect effect: effect of the condition on the mediator),  $b$  (partial indirect effect: effect of the mediator on the dependent variables),  $ab$  (whole indirect effect),  $BootSE$  (Bootstrapping Standard Error),  $BootLLCI$  (95% Bootstrapping Lower Limit Confidence Interval),  $BootULCI$  (95% Bootstrapping Upper Limit Confidence Interval),  $c$  (total effect).

## 11.2 Moderation Analysis

Table 11-3. Moderation analysis performed in the SPSS macro MEMORE. Part I: Models summary of the conditional effects

Model Summary									Model					
Dependent Variable (1 <sup>st</sup> instance)	Dependent Variable (2 <sup>nd</sup> instance)	R	R <sup>2</sup>	MSE	F	df1	df2	P-value	coeff.	SE	t	P-value	LLCI	ULCI
C3_WPP	C2_WPP	0.2602	0.0677	1.6607	24.4000	1	336	0.0000	0.3386	0.0685	4.9396	0.0000	0.2038	0.4734
C2_WPP	C1_WPP	0.2298	0.0528	2.3332	18.7296	1	336	0.0000	0.3516	0.0813	4.3278	0.0000	0.1918	0.5115
C3_WPP	C1_WPP	0.3656	0.1337	3.2479	51.8434	1	336	0.0000	0.6903	0.0959	7.2002	0.0000	0.5017	0.8788
C3_PI	C2_PI	0.1884	0.0355	1.9493	12.3699	1	336	0.0005	0.2612	0.0743	3.5171	0.0005	0.1151	0.4073
C2_PI	C1_PI	0.2149	0.0462	2.7786	16.2624	1	336	0.0001	0.3576	0.0887	4.0327	0.0001	0.1832	0.5320
C3_PI	C1_PI	0.3365	0.1133	3.1532	42.9145	1	336	0.0000	0.6188	0.0945	6.5509	0.0000	0.4330	0.8046
C3_PPP	C2_PPP	0.1660	0.0275	0.9982	9.5159	1	336	0.0022	0.1639	0.0531	3.0848	0.0022	0.0594	0.2685
C2_PPP	C1_PPP	0.1712	0.0293	1.3894	10.1502	1	336	0.0016	0.1998	0.0627	3.1859	0.0016	0.0764	0.3231
C3_PPP	C1_PPP	0.2647	0.0700	1.8473	25.3074	1	336	0.0000	0.3637	0.0723	5.0306	0.0000	0.2215	0.5059

*Note:* Every row represents the summary a two-instances repeated-measures linear regression of the effects of the conditions on the dependent variables at any value of the moderator (i.e., index of protected values), as suggested in previous works (Amanda Kay Montoya, 2019).

$R$  (strength of the linear association between the variables),  $R^2$  (percent of the variability of the dependent variable explained by the linear model),  $MSE$  (Mean Squared Error),  $F$  (statistic),  $df$  (degrees of freedom),  $p$ -value (significance),  $coeff.$  (coefficient),  $SE$  (Standard Error),  $t$  (statistic),  $LLCI$  (95% Lower Limit Confidence Interval),  $ULCI$  (95% Upper Limit Confidence Interval).

Degrees of freedom for all conditional effects = 336.

Table 11-4. Moderation analysis performed in the SPSS macro MEMORE. Part II: Conditional effects

Dependent Variable (1 <sup>st</sup> instance)	Dependent Variable (2 <sup>nd</sup> instance)	Effect	SE	t	p-value	LLCI	ULCI
C3_WPP	C2_WPP	1.0000	0.0701	14.2665	0.0000	0.8621	1.1379
C2_WPP	C1_WPP	1.6065	0.0831	19.3358	0.0000	1.4431	1.7699
C3_WPP	C1_WPP	2.6065	0.0980	26.5900	0.0000	2.4137	2.7993
C3_PI	C2_PI	1.1109	0.0759	14.6288	0.0000	0.9616	1.2603
C2_PI	C1_PI	1.6080	0.0907	17.7348	0.0000	1.4296	1.7863
C3_PI	C1_PI	2.7189	0.0966	28.1501	0.0000	2.5289	2.9089
C3_PPP	C2_PPP	0.4364	0.0543	8.0303	0.0000	0.3295	0.5433
C2_PPP	C1_PPP	0.5488	0.0641	8.5599	0.0000	0.4227	0.6749
C3_PPP	C1_PPP	0.9852	0.0739	13.3267	0.0000	0.8398	1.1306

*Notes:* Every row represents a two-instances repeated-measures linear regression of the effects of the conditions on the dependent variables at the sample mean (5.4739) of the moderator (i.e., index of protected values), as suggested in previous works (Amanda Kay Montoya, 2019).

*SE* (Standard Error), *t* (statistic), *p-value* (significance), *LLCI* (95% Lower Limit Confidence Interval), *ULCI* (95% Upper Limit Confidence Interval).

Degrees of freedom for all conditional effects = 336.

Table 11-5. Moderation analysis performed in the SPSS macro MEMORE. Part III: Models summary of the effects of the moderator on the dependent variables

Dependent Variable	R	R <sup>2</sup>	MSE	F	df1	df2	p-value
C3_WPP	0.3104	0.0964	1.5285	35.8273	1	336	0.0000
C2_WPP	0.0450	0.0020	1.5723	0.6809	1	336	0.4099
C1_WPP	0.2318	0.0537	1.6295	19.0797	1	336	0.0000
C3_PI	0.2472	0.0611	1.4975	21.8756	1	336	0.0000
C2_PI	0.0316	0.0010	1.9695	0.3355	1	336	0.5628
C1_PI	0.2279	0.0519	1.8968	18.4090	1	336	0.0000
C3_PPP	0.1572	0.0247	1.0089	8.5123	1	336	0.0038
C2_PPP	0.0081	0.0001	1.0409	0.0220	1	336	0.8821
C1_PPP	0.1731	0.0300	1.4713	10.3740	1	336	0.0014

*Notes:* Every row represents the summary of a two-instances repeated-measures linear regression of the effects of the moderator (i.e., index of protected values) on the dependent variables in each condition, as suggested in previous works (Amanda Kay Montoya, 2019).

$R$  (strength of the linear association between the variables),  $R^2$  (percent of the variability of the dependent variable explained by the linear model),  $MSE$  (Mean Squared Error),  $F$  (statistic),  $df$  (degrees of freedom),  $p$ -value (significance).

Degrees of freedom for all conditional effects = 336.

Table 11-6. Moderation analysis performed in the SPSS macro MEMORE. Part IV: Effects of the moderator on the dependent variables

<b>Dependent Variable</b>	<b>Effect</b>	<b>SE</b>	<b>t</b>	<b>p-value</b>	<b>LLCI</b>	<b>ULCI</b>
C3_WPP	0.3936	0.0658	5.9856	0.0000	0.2643	0.5230
C2_WPP	0.0550	0.0667	0.8252	0.4099	-0.0762	0.1862
C1_WPP	-0.2966	0.0679	-4.3680	0.0000	-0.4302	-0.1630
C3_PI	0.3045	0.0651	4.6771	0.0000	0.1764	0.4325
C2_PI	0.0432	0.0747	0.5793	0.5628	-0.1036	0.1901
C1_PI	-0.3143	0.0733	-4.2906	0.0000	-0.4584	-0.1702
C3_PPP	0.1559	0.0534	2.9176	0.0038	0.0508	0.2610
C2_PPP	-0.0081	0.0543	-0.1485	0.8821	-0.1148	0.0987
C1_PPP	-0.2078	0.0645	-3.2209	0.0014	-0.3347	-0.0809

*Notes:* Every row represents a two-instances repeated-measures linear regression of the effects of the moderator (i.e., index of protected values) on the dependent variables in each condition, as suggested in previous works (Amanda Kay Montoya, 2019).

$SE$  (Standard Error),  $t$  (statistic),  $p$ -value (significance),  $LLCI$  (95% Lower Limit Confidence Interval),  $ULCI$  (95% Upper Limit Confidence Interval).

Degrees of freedom for all conditional effects = 336.

## 12. Appendix F: Sociodemographic Information

As mentioned in the *Results*, this appendix contains the information regarding the sociodemographic data collected in the experiment, and which was specified in section 10.6 *Sociodemographic Section*. The data will be presented in tables to summarize it in an organized fashion.

Table 12-1. Age ranges of the experiment participants

Age Range	Frequency	Percent (%)
Younger than 18 years old	42	12.4
From 19 to 22 years old	129	38.2
From 23 to 26 years old	90	26.6
From 27 to 30 years old	40	11.8
From 31 to 40 years old	28	8.3
Older than 41 years old	9	2.7
<b>Total</b>	<b>338</b>	<b>100.0</b>

Table 12-2. Gender of the experiment participants

Gender	Frequency	Percent (%)
Male	265	78.4
Female	72	21.3
Other	1	0.3
<b>Total</b>	<b>338</b>	<b>100.0</b>

Table 12-3. Highest level of completed education of the experiment participants

Highest Level of Completed Education	Frequency	Percent (%)
High school (10 <sup>o</sup> - 11 <sup>o</sup> )	144	42.6
Technical	54	16.0
Technological	15	4.4
Undergraduate	93	27.5
Specialization	6	1.8
Master's degree	23	6.8

Doctorate	3	0.9
<b>Total</b>	<b>338</b>	<b>100.0</b>

Table 12-4. University branch of the experiment participants

University Branch	Frequency	Percent (%)
Amazonía	2	0.6
Bogotá	334	98.8
Medellín	2	0.6
<b>Total</b>	<b>338</b>	<b>100.0</b>

Table 12-5. Relationship with the university of the experiment participants

Relationship with the university	Frequency	Percent (%)
Student	332	98.2
International Student	0	0.0
Professor	3	0.9
Administrative staff	2	0.6
Former student	8	2.4
Retired professor	0	0.0
Service contract	8	2.4
Other	2	0.6

*Note:* The frequencies in this table exceed the total of 338 because the participants had the chance to pick more than one choice

Table 12-6. Last academic program studied in the university of the experiment participants

Last academic program studied in the university	Frequency	Percent (%)
Economía - Economy (Bogotá branch)	1	0.3
Ingeniería Electrónica – Electronic Engineering (Bogotá branch)	1	0.3
Ingeniería Industrial – Industrial Engineering (Bogotá branch)	1	0.3
Ingeniería Química – Chemical Engineering (Bogotá branch)	2	0.6
Maestría en Administración – Master's in Administration (Bogotá branch)	2	0.6
Maestría en Sistemas y Computación – Master's in Systems and Computation (Bogotá branch)	1	0.3
<b>Total</b>	<b>8</b>	<b>2.4</b>

*Note:* The frequencies account for the participants who picked "Former student" in Table 12-5

Table 12-7. Current academic program of the experiment participants

<b>Current academic program</b>	<b>Frequency</b>	<b>Percent (%)</b>
Doctorado en Industria y Organizaciones – Ph.D. in Industries and Organizations (Bogotá branch)	11	3.3
Doctorado en Sistemas y Computación – Ph.D. in Systems and Computation (Bogotá branch)	4	1.2
Ingeniería Administrativa – Administrative Engineering (Medellín branch)	1	0.3
Ingeniería de Sistemas y Computación – Systems and Computation Engineering (Bogotá branch)	176	52.1
Ingeniería Industrial – Industrial Engineering (Bogotá branch)	89	26.3
Maestría en Administración – Master’s in Administration (Bogotá branch)	1	0.3
Maestría en Bioinformática – Master’s in Bioinformatics (Bogotá branch)	3	0.9
Maestría en Sistemas y Computación – Master’s in Systems and Computation (Bogotá branch)	17	5.0
Maestría en Ingeniería Industrial – Master’s in Industrial Engineering (Bogotá branch)	26	7.7
Maestría en Telecomunicaciones – Master’s in Telecommunication (Bogotá branch)	4	1.2
<b>Total</b>	<b>332</b>	<b>98.2</b>

*Note:* The frequencies account for the participants who picked “Student” in Table 12-5

Table 12-8. Progress percent in the current academic program of the experiment participants

<b>Progress percent in the current academic program</b>	<b>Frequency</b>	<b>Percent (%)</b>
Less than 20%	99	29.3
Between 20% and 40%	70	20.7
Between 41% and 60%	66	19.5
Between 61% and 80%	62	18.3
More than 81%	35	10.4
<b>Total</b>	<b>332</b>	<b>98.2</b>

*Note:* The frequencies account for the participants who picked “Student” in Table 12-5

Table 12-9. Socioeconomic status of the experiment participants

<b>Socioeconomic status</b>	<b>Frequency</b>	<b>Percent (%)</b>
1	22	6.5
2	75	22.2

3	156	46.2
4	65	19.2
5	12	3.6
6	3	0.9
Does not know	5	1.5
<b>Total</b>	<b>338</b>	<b>100.0</b>

Table 12-10. Monthly average income of the household of the experiment participants

<b>Monthly Average Income of the Household</b>	<b>Frequency</b>	<b>Percent (%)</b>
Less than 1 SMMW: less than \$877,803 COP (264 USD approx.)	35	10.4
From 1 to less than 2 SMMW: between \$877,803 and \$1,755,606 COP (between 264 and 527 USD approx.)	85	25.1
From 2 to less than 3 SMMW: between \$1,755,606 and \$2,633,409 COP (between 527 and 790 USD approx.)	58	17.2
From 3 to less than 4 SMMW: between \$2,633,409 and \$3,511,212 COP (between 790 and 1,054 USD approx.)	42	12.4
From 4 to less than 5 SMMW: between \$3,511,212 and \$4,389,015 COP (between 1,054 and 1,317 USD approx.)	35	10.4
From 5 to less than 6 SMMW: between \$4,389,015 and \$5,266,818 COP (between 1,317 and 1,580 USD approx.)	21	6.2
From 6 to less than 7 SMMW: between \$5,266,818 and \$6,144,621 COP (between 1,580 and 1,844 USD approx.)	16	4.7
More than 7 SMMW: more than \$6,144,621 COP (more than 1,844 USD approx.)	46	13.6
<b>Total</b>	<b>338</b>	<b>100.0</b>

Table 12-11. Number of people in the household of the experiment participants

<b>Number of People in the Household</b>	<b>Frequency</b>	<b>Percent (%)</b>
0	1	0.3
1	9	2.7
2	44	13.0
3	77	22.8
4	122	36.1
5	56	16.6
6	14	4.1
7	6	1.8
8	5	1.5

9	2	0.6
10	2	0.6
<b>Total</b>	<b>338</b>	<b>100.0</b>

Table 12-12. Question of expressed environmental friendly purchase of the experiment participants

<b>Do you remember if you bought any environmentally friendly product during your last 10 purchases?</b>	<b>Frequency</b>	<b>Percent (%)</b>
Definitely yes	111	32.8
Probably yes	111	32.8
Might or might not	59	17.5
Probably not	41	12.1
Definitely not	16	4.7
<b>Total</b>	<b>338</b>	<b>100.0</b>

One analysis more was considered. All the sociodemographic variables were evaluated through all their categories with ANOVA (for the absolute measures) and chi-square tests (for the paired comparison and ranking data) to see if there were any significant differences. The results are shown in *Table 12-13*. Although there are some tendencies found across different questions, such as in gender (both absolute measures and paired comparison/ranking data), highest level of completed education (paired comparison/ranking data), number of people in the household (paired comparison/ranking data) and self-reported question of environmentally friendliness (absolute measures), there were no outstanding differences. Thus, these differences will not be discussed further, because more research is needed in this regard and are beyond the scope of this study.

Table 12-13. Number of items statistically significant different given by ANOVAs or chi-square tests in the sociodemographic questions

<b>Sociodemographic question</b>	<b>Categories</b>	<b>Statistically Significant Differences</b>					
		<b>Items of Absolute measures</b>	<b>Items</b>	<b>%</b>	<b>Items of Paired comparison &amp; Ranking</b>	<b>Items</b>	<b>%</b>
Age	6	6	PV_IM_Outrag PV_IM_Accept PV_DM_Flex PVInd6 C1_PPP1 C1_PI2	18.18	1	PI_C321	6.25
Gender	2	12	PV_IM_Moral PV_IM_Praise PV_IM_Outrag PV_IM_Accept	36.36	4	PPP_C32 WPP_C32 PPP_C31 PPP_C321	25.00

			PV_DM_Flex PVInd6 C3_WPP2 C1_WPP1 C1_WPP2 C1_PEF2 C1_PPP1 C1_PPP2				
Highest Level of Completed Education	7	0	-	0.00	6	PI_C23 PEF_C32 WPP_C21 PI_C31 WPP_C31 PI_C321	37.50
University program	3	6	C2_PPP1 C1_WPP1 C1_WPP2 C1_PEF1 C1_PPP1 C1_PPP2 C1_PI1	18.18	3	PI_C32 PPP_C321 WPP_C321	18.75
SIA progress percent	5	3	C2_PEF2 C2_PI1 C1_PPP1	9.09	0	-	0.00
Socioeconomic status	7	3	C3_PEF1 C3_PEF2 PV_DM_MonTer	9.09	1	WPP_C32	6.25
Monthly average income of the household	8	6	C3_PEF1 C3_PEF2 C3_PI2 C1_WPP1 C1_PEF1 C1_PPP2	18.18	2	WPP_C21 PEF_C21	12.50
Number of people in the household	11	0	-	0.00	4	PEF_C32 PEF_C21 PEF_C31 PI_C321	25.00
Do you remember if you bought any environmentally friendly product during your last 10 purchases?	5	9	C3_WPP1 C3_WPP2 C3_PI1 C3_PI2 PV_IM_Moral PV_IM_Praise PV_IM_Outrag PV_IM_Accept PVInd6	27.27	3	PPP_C32 PPP_C31 PI_C31	18.75

## 13. Bibliography

- Ahmad, A., & Thyagaraj, K. S. (2015). Consumer's Intention to Purchase Green Brands: The Roles of Environmental Concern, Environmental Knowledge and Self Expressive Benefit. *Current World Environment*, 10(3), 879–889.
- Ahn, S. Y. (2016). *Change to Sustainable Choice: The Role of Preference-Inconsistent Information*. THE UNIVERSITY OF ARIZONA.
- Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211.  
[https://doi.org/10.1922/CDH\\_2120VandenBroucke08](https://doi.org/10.1922/CDH_2120VandenBroucke08)
- Akisik, O., & Gal, G. (2017). The impact of corporate social responsibility and internal controls on stakeholders' view of the firm and financial performance. *Sustainability Accounting, Management and Policy Journal*, 8(3), 246–280.  
<https://doi.org/10.1108/SAMPJ-06-2015-0044>
- Alsmadi, S. (2007). Green marketing and the concern over the environment: Measuring environmental consciousness of Jordanian consumers. *Journal of Promotion Management*, 13(3–4), 339–361. <https://doi.org/10.1080/10496490802306905>
- Amos, C., Hansen, J. C., & King, S. (2019). All-natural versus organic: are the labels equivalent in consumers' minds? *Journal of Consumer Marketing*, 1–11.  
<https://doi.org/10.1108/JCM-05-2018-2664>
- Anderson, E. W., Fornell, C., & Lehmann, D. R. (1994). Customer Satisfaction, Market Share, and Profitability: Findings from Sweden. *Journal of Marketing*, 58(3), 53–66.  
<https://doi.org/10.2307/1252310>
- Anderson, J. C., & Gerbing, D. W. (1988). Structural Equation Modeling in Practice: A Review and Recommended Two-Step Approach. *Psychological Bulletin*, 103(3), 411–423. <https://doi.org/10.1037/0033-2909.103.3.411>
- Apaolaza, V., Hartmann, P., D'Souza, C., & López, C. M. (2018). Eat organic – Feel good? The relationship between organic food consumption, health concern and subjective

- wellbeing. *Food Quality and Preference*, 63(October 2016), 51–62.  
<https://doi.org/10.1016/j.foodqual.2017.07.011>
- Apaolaza, V., Hartmann, P., Echebarria, C., & Barrutia, J. M. (2017). Organic label's halo effect on sensory and hedonic experience of wine: A pilot study. *Journal of Sensory Studies*, 32(1), 1–11. <https://doi.org/10.1111/joss.12243>
- Aragón Correa, J. A., Hurtado Torres, N. E., & García Morales, V. J. (2005). Un modelo explicativo de las estrategias medioambientales avanzadas para pequeñas y medianas empresas y su influencia en los resultados. *Cuadernos de Economía y Dirección de La Empresa*, 25, 29–52.  
<http://dialnet.unirioja.es/servlet/articulo?codigo=2162950&info=resumen&idioma=SPA>
- Arlı, D., Tan, L. P., Tjiptono, F., & Yang, L. (2018). Exploring consumers' purchase intention towards green products in an emerging market: The role of consumers' perceived readiness. *International Journal of Consumer Studies*, 1–13.  
<https://doi.org/10.1111/ijcs.12432>
- Armstrong Soule, C. A., & Reich, B. J. (2015). Less is more: is a green demarketing strategy sustainable? *Journal of Marketing Management*, 31(13–14), 1403–1427.  
<https://doi.org/10.1080/0267257X.2015.1059874>
- Asch, S. E. (1946). Forming impressions of personality. *The Journal of Abnormal and Social Psychology*, 41(3), 258–290. <https://doi.org/10.1037/h0060423>
- Baalbaki, S., & Guzmán, F. (2016). A consumer-perceived consumer-based brand equity scale. *Journal of Brand Management*, 23, 229–251.  
<https://doi.org/10.1057/bm.2016.11>
- Bacig, M., & Young, C. A. (2019). The halo effect created for restaurants that source food locally. *Journal of Foodservice Business Research*, 1–30.  
<https://doi.org/10.1080/15378020.2019.1592654>
- Bailey, A. A., Mishra, A., & Tiarniyu, M. F. (2016). GREEN consumption values and Indian consumers' response to marketing communications. *Journal of Consumer Marketing*, 33(7), 562–573. <https://doi.org/10.1108/JCM-12-2015-1632>
- Bangsa, A. B., & Schlegelmilch, B. B. (2020). Linking sustainable product attributes and

- consumer decision-making: Insights from a systematic review. *Journal of Cleaner Production*, 245, 118902. <https://doi.org/10.1016/j.jclepro.2019.118902>
- Barbarossa, C., & De Pelsmacker, P. (2016). Positive and Negative Antecedents of Purchasing Eco-friendly Products: A Comparison Between Green and Non-green Consumers. *Journal of Business Ethics*, 134, 229–247. <https://doi.org/10.1007/s10551-014-2425-z>
- Baron, J. (2017). Protected Values and Other Types of Values. *Analyse Und Kritik*, 39(1), 85–99. <https://doi.org/10.1515/auk-2017-0005>
- Baron, J., & Spranca, M. (1997). Protected Values. *Organizational Behavior and Human Decision Processes*, 70(1), 1–16.
- Barone, M. J., Norman, A. T., & Miyazaki, A. D. (2007). Consumer response to retailer use of cause-related marketing: Is more fit better? *Journal of Retailing*, 83(4), 437–445. <https://doi.org/10.1016/j.jretai.2007.03.006>
- Bask, A., Halme, M., Kallio, M., & Kuula, M. (2013). Consumer preferences for sustainability and their impact on supply chain management. The case of mobile phones. *International Journal of Physical Distribution & Logistics Management*, 45(5/6), 380–406. <https://doi.org/10.1108/IJPDLM-03-2012-0081>
- Bentham, P. (1998). Green Power in Perspective: Lessons from Green Marketing of Consumer Goods. *The Electricity Journal*, 11(1), 46–55.
- Betts, T. K., Wiengarten, F., & Tadisina, S. K. (2015). Exploring the impact of stakeholder pressure on environmental management strategies at the plant level: What does industry have to do with it? *Journal of Cleaner Production*, 92, 282–294. <https://doi.org/10.1016/j.jclepro.2015.01.002>
- Bhatia, M., & Jain, A. (2013). Green Marketing: A Study of Consumer Perception and Preferences in India. *Electronic Green Journal*, 1(36), 20.
- Bonn, M. A., Cronin, J. J., & Cho, M. (2016). Do Environmental Sustainable Practices of Organic Wine Suppliers Affect Consumers' Behavioral Intentions? The Moderating Role of Trust Mark. *Cornell Hospitality Quarterly*, 1–17. <https://doi.org/10.1177/1938965515576567>
- Brislin, R. W. (1986). The wording and translation of research instruments. In W. J. Lonner

- & J. W. Berry (Eds.), *Cross-cultural research and methodology series, Field methods in cross-cultural research* (Vol. 8, pp. 137–164). Sage Publications, Inc. <https://doi.org/10.2307/3172934>
- Buysse, K., & Verbeke, A. (2003). Proactive Environmental Strategies: A Stakeholder Management Perspective. *Source: Strategic Management Journal*, 24(5), 453–470. <https://doi.org/10.1002/smj.299>
- Carter, S. R. (2016). Using confirmatory factor analysis to manage discriminant validity issues in social pharmacy research. *International Journal of Clinical Pharmacy*, 38(3), 731–737. <https://doi.org/10.1007/s11096-016-0302-9>
- Casanova Pinto, M. D. (2011). *THE IMPACT OF SOURCE CREDIBILITY ON CONSUMERS' RESPONSES TO CORPORATE SOCIAL RESPONSIBILITY INITIATIVES*. ISCTE Business School.
- Chacón-Vargas, J. R. (2017). *La gestión responsable en la cadena de suministro de productos sostenibles: una propuesta de modelo integrador desde la teoría de la visión de la firma basada en recursos y la teoría de las partes interesadas*. Universidad Nacional de Colombia.
- Chacón-Vargas, J. R., & Moreno-Mantilla, C. E. (2017). Antecedentes organizacionales y capacidades para la gestión sostenible de la cadena de suministros en economías emergentes: El caso de las firmas focales colombianas. *Cuadernos de Administración*, 29(53), 101–146. <https://doi.org/10.11144/javeriana.cao29-53.oacs>
- Chacón-Vargas, J. R., Moreno-Mantilla, C. E., & de Sousa Jabbour, A. B. L. (2018). Enablers of sustainable supply chain management and its effect on competitive advantage in the Colombian context. *Resources, Conservation and Recycling*, 139, 237–250. <https://doi.org/10.1016/j.resconrec.2018.08.018>
- Chekima, B. C., Syed Khalid Wafa, S. A. W., Igau, O. A., Chekima, S., & Sondoh, S. L. (2016). Examining green consumerism motivational drivers: Does premium price and demographics matter to green purchasing? *Journal of Cleaner Production*, 112, 3436–3450. <https://doi.org/10.1016/j.jclepro.2015.09.102>
- Chekima, B., Oswald, A. I., Wafa, S. A. W. S. K., & Chekima, K. (2017). Narrowing the gap: Factors driving organic food consumption. *Journal of Cleaner Production*, 166,

- 1438–1447. <https://doi.org/10.1016/j.jclepro.2017.08.086>
- Chekima, B., Wafa, S. A. W. S. K., Igau, O. A., & Chekima, S. (2015). Determinant factors of consumers' green purchase intention: The moderating role of environmental advertising. *Asian Social Science*, *11*(10), 318–329. <https://doi.org/10.5539/ass.v11n10p318>
- Chen, C. C., Chen, C. W., & Tung, Y. C. (2018). Exploring the consumer behavior of intention to purchase green products in Belt and Road countries: An empirical analysis. *Sustainability (Switzerland)*, *10*(3). <https://doi.org/10.3390/su10030854>
- Cheng, S. Y. Y., White, T. B., & Chaplin, L. N. (2012). The effects of self-brand connections on responses to brand failure: A new look at the consumer-brand relationship. *Journal of Consumer Psychology*, *22*(2), 280–288. <https://doi.org/10.1016/j.jcps.2011.05.005>
- Chernev, A., & Blair, S. (2015). Doing Well by Doing Good: The Benevolent Halo of Corporate Social Responsibility. *Journal of Consumer Research*, *41*(6), 1412–1425. <https://doi.org/10.1086/680089>
- Chin, R., & Lee, B. Y. (2008). Economics and Patient Reported Outcomes. *Principles and Practice of Clinical Trial Medicine*, 145–165. <https://doi.org/10.1016/b978-0-12-373695-6.00008-9>
- Cleveland, M., Kalamas, M., & Laroche, M. (2005). Shades of green: Linking environmental locus of control and pro-environmental behaviors. *Journal of Consumer Marketing*, *22*(4), 198–212. <https://doi.org/10.1108/07363760510605317>
- Crissien-Borrero, T., Cortés-Peña, O., & Herrera-Mendoza, K. (2016). Pro-Environmental Assessment and Sustainable Consumption of Household Public Services in Barranquilla Colombia. *The European Proceedings of Social & Behavioural Sciences*, *17*, 434–440. <https://doi.org/10.15405/epsbs.2016.11.02.39>
- Curran, P. J., West, S. G., & Finch, J. F. (1996). The Robustness of Test Statistics to Nonnormality and Specification Error in Confirmatory Factor Analysis. *Psychological Methods*, *1*(1), 16–29.
- D'Souza, C., Taghian, M., & Khosla, R. (2007). Examination of environmental beliefs and its impact on the influence of price, quality and demographic characteristics with respect to green purchase intention. *Journal of Targeting, Measurement and Analysis*

- for Marketing*, 15(2), 69–78. <https://doi.org/10.1057/palgrave.jt.5750039>
- Dahlinger, A., & Wortmann, F. (2016). FOSTERING PRO-ENVIRONMENTAL BEHAVIOR WITH GREEN CONSUMER IS: THE EFFECTS OF IS-INDUCED CONSTRUAL AND GENERAL IS USAGE MOTIVATIONS. *Twenty-Fourth European Conference on Information Systems (ECIS)*, 12. [http://aisel.aisnet.org/ecis2016\\_rip](http://aisel.aisnet.org/ecis2016_rip)
- Dahlstrom, R. F. (2011). *Green marketing management* (First Edit). South-Western / Cengage Learning.
- Davis-Sramek, B., Thomas, R. W., & Fugate, B. S. (2018). Integrating Behavioral Decision Theory and Sustainable Supply Chain Management: Prioritizing Economic, Environmental, and Social Dimensions in Carrier Selection. *Journal of Business Logistics*, 1–14. <https://doi.org/10.1111/jbl.12181>
- De Angelis, R., Howard, M., & Miemczyk, J. (2018). Supply chain management and the circular economy: towards the circular supply chain. *Production Planning and Control*, 29(6), 425–437. <https://doi.org/10.1080/09537287.2018.1449244>
- de Lange, D. E. (2017). Start-up sustainability: An insurmountable cost or a life-giving investment? *Journal of Cleaner Production*, 156, 838–854. <https://doi.org/10.1016/j.jclepro.2017.04.108>
- De Pelsmacker, P., Driesen, L., & Rayp, G. (2013). Do consumers care about ethics? Willingness to pay for fair-trader coffee. *The Journal of Consumers Affairs*, 13(2), 363–386. <https://doi.org/10.1177/1470593113477887>
- De Souza Zapese, E. R., Giro Moori, R., & Caldeira, A. (2016). GREEN MARKETING AS A MEDIATOR BETWEEN SUPPLY CHAIN MANAGEMENT AND ORGANIZATIONAL PERFORMANCE. *Revista de Administração Mackenzie*, 17(3), 183–211.
- DiPietro, R. B., Cao, Y., & Partlow, C. (2013). Green practices in upscale foodservice operations: Customer perceptions and purchase intentions. *International Journal of Contemporary Hospitality Management*, 25(5), 779–796. <https://doi.org/10.1108/IJCHM-May-2012-0082>
- Donaldson, R. H. (2005). Green brands. *NZ Marketing Magazine*, 24(8), 14–17.

- Donaldson, T., & Preston, L. E. (1995). The Stakeholder Theory of the Corporation: Concepts, Evidence, and Implications. *The Academy of Management Review*, 20(1), 65–91.  
<http://www.faculty.wvu.edu/dunnc3/rprnts.stakeholdertheoryofcorporation.pdf>
- Dong, D., Chang, H. C., & Wang, T. (2017). The CSR green halo effect on the corporate–public communication: an experimental study. *Asian Journal of Communication*, 27(2), 213–230. <https://doi.org/10.1080/01292986.2016.1257034>
- Dubey, R., Gunasekaran, A., & Papadopoulos, T. (2017). Green supply chain management: theoretical framework and further research directions. *Benchmarking*, 24(1), 184–218. <https://doi.org/10.1108/BIJ-01-2016-0011>
- Duc, C., Hanselmann, M., Boesiger, P., & Tanner, C. (2013). Sacred Values: Trade-Off Type Matters. *Journal of Neuroscience, Psychology, and Economics*, 15(5), 419–423. <https://doi.org/10.1037/npe0000014>
- Eckerdt, S. (2016). Experiments in purchasing and supply management research. *Journal of Purchasing and Supply Management*, 22(4), 258–261. <https://doi.org/10.1016/j.pursup.2016.08.002>
- EFE. (2018, August 4). El cambio climático aumentaría las muertes en Colombia. *Portafolio*. <https://www.portafolio.co/internacional/fuerte-aumento-de-muertes-en-colombia-por-cambio-climatico-519770>
- Emerson, R. W. (2019). Cronbach’s Alpha Explained. *Journal of Visual Impairment and Blindness*, 113(3), 327. <https://doi.org/10.1177/0145482X19858866>
- Escalas, J. E. (2004). Narrative Processing: Building Consumer Connections to Brands. *Journal of Consumer Psychology*, 14(1–2), 168–180. [https://doi.org/10.1207/s15327663jcp1401&2\\_19](https://doi.org/10.1207/s15327663jcp1401&2_19)
- Essoussi, L. H., & Linton, J. D. (2010). New or recycled products: How much are consumers willing to pay? *Journal of Consumer Marketing*, 27(5), 458–468. <https://doi.org/10.1108/07363761011063358>
- Fang, L., & Xu, S. (2020). Financing equilibrium in a green supply chain with capital constraint. *Computers and Industrial Engineering*, 143(February), 106390. <https://doi.org/10.1016/j.cie.2020.106390>

- Farooque, M., Zhang, A., Thürer, M., Qu, T., & Huisingh, D. (2019). Circular supply chain management: A definition and structured literature review. *Journal of Cleaner Production*, 228, 882–900. <https://doi.org/10.1016/j.jclepro.2019.04.303>
- Festinger, L. (1957). *A theory of cognitive dissonance*. [https://books.google.com.co/books/about/A\\_Theory\\_of\\_Cognitive\\_Dissonance.html?id=voeQ-8CASacC&redir\\_esc=y](https://books.google.com.co/books/about/A_Theory_of_Cognitive_Dissonance.html?id=voeQ-8CASacC&redir_esc=y)
- Gamma, K., Mai, R., & Loock, M. (2018). The Double-Edged Sword of Ethical Nudges: Does Inducing Hypocrisy Help or Hinder the Adoption of Pro-environmental Behaviors? *Journal of Business Ethics*, 1–23. <https://doi.org/10.1007/s10551-018-3930-2>
- Geissdoerfer, M., Morioka, S. N., de Carvalho, M. M., & Evans, S. (2018). Business models and supply chains for the circular economy. *Journal of Cleaner Production*, 190, 712–721. <https://doi.org/10.1016/j.jclepro.2018.04.159>
- Genovese, A., Acquaye, A. A., Figueroa, A., & Koh, S. C. L. (2017). Sustainable supply chain management and the transition towards a circular economy: Evidence and some applications. *Omega (United Kingdom)*, 66, 344–357. <https://doi.org/10.1016/j.omega.2015.05.015>
- Getzner, M., & Grabner-Kräuter, S. (2015). Consumer preferences and marketing strategies for “green shares”. Specifics of the Austrian market. *International Journal of Bank Marketing*, 22(4), 260–278. <https://doi.org/10.1108/02652320410542545>
- Gibson, R., Tanner, C., & Wagner, A. F. (2013). Preferences for truthfulness: Heterogeneity among and within individuals. *American Economic Review*, 103(1), 532–548. <https://doi.org/10.1257/aer.103.1.532>
- Gigerenzer, G., & Gaissmaier, W. (2011). Heuristic Decision Making. *Annual Review of Psychology*, 62, 451–482. <https://doi.org/10.1146/annurev-psych-120709-145346>
- Gillespie, B., & Rogers, M. M. (2016). Sustainable Supply Chain Management and the End User: Understanding the Impact of Socially and Environmentally Responsible Firm Behaviors on Consumers' Brand Evaluations and Purchase Intentions. *Journal of Marketing Channels*, 23(1–2), 34–46. <https://doi.org/10.1080/1046669X.2016.1147885>

- Goodwin, L. D. (1999). The Role of Factor Analysis in the Estimation of Construct Validity. *Measurement in Physical Education and Exercise Science*, 3(2), 85–100. <https://doi.org/10.1207/s15327841mpee0302>
- Govender, J. P., & Govender, T. L. (2016). The influence of green marketing on consumer purchase behavior. *Environmental Economics*, 7(2), 77–85. [https://doi.org/10.21511/ee.07\(2\).2016.8](https://doi.org/10.21511/ee.07(2).2016.8)
- Green, K. W., Zelbst, P. J., Bhadauria, V. S., & Meacham, J. (2012). Do environmental collaboration and monitoring enhance organizational performance? *Industrial Management & Data Systems*, 112(2), 186–205. <https://doi.org/10.1108/02635571211204254>
- Green, K. W., Zelbst, P. J., Meacham, J., & Bhadauria, V. S. (2012). Green supply chain management practices: impact on performance. *Supply Chain Management: An International Journal*, 17(3), 290–305. <https://doi.org/10.1108/13598541211227126>
- Groening, C., Sarkis, J., & Zhu, Q. (2018). Green marketing consumer-level theory review: A compendium of applied theories and further research directions. *Journal of Cleaner Production*, 172, 1848–1866. <https://doi.org/10.1016/j.jclepro.2017.12.002>
- Groening, C., & Zhu, Q. (2019). Consumers' role in the green supply chain. In J. Sarkis (Ed.), *Handbook on the Sustainable Supply Chain* (pp. 171–184). Edward Elgar Pub. <https://doi.org/https://doi.org/10.4337/9781786434272>
- Groves, R. M. (2006). Nonresponse rates and nonresponse bias in household surveys. *Public Opinion Quarterly*, 70(5), 646–675. <https://doi.org/10.1093/poq/nfl033>
- Grunert, K. G. (2011). Sustainability in the Food Sector: A Consumer Behaviour Perspective. *International Journal on Food System Dynamics*, 2(3), 207–218. <https://doi.org/http://dx.doi.org/10.18461/ijfsd.v2i3.232>
- Gualandris, J., & Kalchschmidt, M. (2014). Customer pressure and innovativeness: Their role in sustainable supply chain management. *Journal of Purchasing and Supply Management*, 20, 92–103. <https://doi.org/10.1016/j.pursup.2014.03.001>
- H'Mida, S. (2009). Factors contributing in the formation of consumers' environmental consciousness and shaping green purchasing decisions. *2009 International Conference on Computers & Industrial Engineering*, 957–962.

<https://doi.org/10.1109/ICCIE.2009.5223972>

- Haga, A. (2018). Eco-Label Effects in the Built Environment: Does Labeling a Light Source Environmentally Friendly Influence Performance and Judgment? *SAGE Open*, 8(2), 1–8. <https://doi.org/10.1177/2158244018766977>
- Hahnel, U. J. J., Arnold, O., Waschto, M., Korcaj, L., Hillmann, K., Roser, D., & Spada, H. (2015). The power of putting a label on it: Green labels weigh heavier than contradicting product information for consumers' purchase decisions and post-purchase behavior. *Frontiers in Psychology*, 6(September), 1–17. <https://doi.org/10.3389/fpsyg.2015.01392>
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). Multivariate Data Analysis. In *Exploratory Data Analysis in Business and Economics* (New Intern). PEARSON. [https://doi.org/10.1007/978-3-319-01517-0\\_3](https://doi.org/10.1007/978-3-319-01517-0_3)
- Haket, M. (2016). *The customer perceived value of sustainability. An empirical research of the B2B customer perceived value of sustainability within the field of electrical and mechanical installations, and the potential effects on their satisfaction, loyalty and price acc.* Open University Netherlands.
- Halldórsson, Á., & Kovács, G. (2010). The sustainable agenda and energy efficiency: Logistics solutions and supply chains in times of climate change. *International Journal of Physical Distribution & Logistics Management*, 40(1–2), 5–13. <https://doi.org/10.1108/09600031011018019>
- Hanaysha, J. R. (2018). An examination of the factors affecting consumer's purchase decision in the Malaysian retail market. *PSU Research Review*, 2(1), 7–23. <https://doi.org/10.1108/PRR-08-2017-0034>
- Hanel, P. H. P., & Vione, K. C. (2016). Do student samples provide an accurate estimate of the general public? *PLoS ONE*, 11(12), 1–10. <https://doi.org/10.1371/journal.pone.0168354>
- Hanselmann, M., & Tanner, C. (2008). Taboos and conflicts in decision making: Sacred values, decision difficulty, and emotions. *Judgment and Decision Making*, 3(1), 51–63. <https://doi.org/10.5167/uzh-5948>
- Harrigan, P., Evers, U., Miles, M. P., & Daly, T. (2018). Customer engagement and the

- relationship between involvement, engagement, self-brand connection and brand usage intent. *Journal of Business Research*, 88, 388–396. <https://doi.org/10.1016/j.jbusres.2017.11.046>
- Hart, S. L. (1995). A Natural-Resource-Based View of the Firm. *Academy of Management Review*. <https://doi.org/10.5465/amr.1995.9512280033>
- Hartmann, P., & Apaolaza-Ibáñez, V. (2012). Consumer attitude and purchase intention toward green energy brands: The roles of psychological benefits and environmental concern. *Journal of Business Research*, 65(9), 1254–1263. <https://doi.org/10.1016/j.jbusres.2011.11.001>
- Herédia-Colaço, V., & Coelho Do Vale, R. (2016). Seize the Day or Save the World? The Importance of Ethical Claims and Product Nature Congruity. *Journal of Business Ethics*, 1–19. <https://doi.org/10.1007/s10551-016-3342-0>
- Hickok, K. (2018, August 30). Extreme Heat Likely Cooked 2,000 Fish to Death in Malibu Lagoon. *Live Science*. <https://www.livescience.com/63466-hot-fish-kill.html>
- Hoek, J., Roling, N., & Holdsworth, D. (2013). Ethical claims and labelling: An analysis of consumers' beliefs and choice behaviours. *Journal of Marketing Management*, 29(7–8), 772–792. <https://doi.org/10.1080/0267257X.2012.715430>
- Holmgren, M., & Sörqvist, P. (2018). Are Mental Biases Responsible for the Perceived Comfort Advantage in “Green” Buildings? *Buildings*, 8(2), 20. <https://doi.org/10.3390/buildings8020020>
- Homer, P. M., & Kahle, L. R. (1988). A Structural Equation Test of the Value-Attitude-Behavior Hierarchy. *Journal of Personality and Social Psychology*, 54(4), 638–646.
- Hotter, J. C. (2018). *Breaking the Muscular Mold: The Application of Homophily, Credibility, and Physical Attractiveness within Attitude and Perceived Behavioral Control towards Weight Lifting* [Virginia Polytechnic Institute and State University]. [https://vtechworks.lib.vt.edu/bitstream/handle/10919/83530/Hotter\\_JC\\_T\\_2018.pdf?sequence=1&isAllowed=y](https://vtechworks.lib.vt.edu/bitstream/handle/10919/83530/Hotter_JC_T_2018.pdf?sequence=1&isAllowed=y)
- Hsu, C. L., Chang, C. Y., & Yansritakul, C. (2017). Exploring purchase intention of green skincare products using the theory of planned behavior: Testing the moderating effects of country of origin and price sensitivity. *Journal of Retailing and Consumer Services*,

- 34, 145–152. <https://doi.org/10.1016/j.jretconser.2016.10.006>
- Hume, M. (2010). Compassion without action: Examining the young consumers consumption and attitude to sustainable consumption. *Journal of World Business*, 45(4), 385–394. <https://doi.org/10.1016/j.jwb.2009.08.007>
- Hussain, S. S. (2000). Green Consumerism and Ecolabelling: A Strategic Behavioural Model. *Journal of Agricultural Economics*, 51(1), 77–89. <https://doi.org/10.1111/j.1477-9552.2000.tb01210.x>
- Irwin, J. R., & Spira, J. S. (1997). Anomalies in the Values for Consumer Goods With Environmental Attributes. *Journal of Consumer Psychology*, 6(4), 339–363.
- Iyer, E. S., & Kashyap, R. K. (2007). Consumer recycling: Role of incentives, information, and social class. *Journal of Consumer Behaviour*, 6, 32–47. <https://doi.org/10.1002/cb>
- Jager, J., Putnick, D. L., & Bornstein, M. H. (2017). More than Just Convenient: The Scientific Merits of Homogeneous Convenience Samples. *Monographs of the Society for Research in Child Development*, 82(2), 13–30. <https://doi.org/10.1016/j.physbeh.2017.03.040>
- Jayaram, J., & Avittathur, B. (2015). Green supply chains: A perspective from an emerging economy. *International Journal of Production Economics*, 164, 234–244. <https://doi.org/10.1016/j.ijpe.2014.12.003>
- Jayaraman, V., Singh, R., & Anandnarayan, A. (2012). Impact of sustainable manufacturing practices on consumer perception and revenue growth: An emerging economy perspective. *International Journal of Production Research*, 50(5), 1395–1410. <https://doi.org/10.1080/00207543.2011.571939>
- Jeong, E. H., Jang, S. C., Day, J., & Ha, S. (2014). The impact of eco-friendly practices on green image and customer attitudes: An investigation in a café setting. *International Journal of Hospitality Management*, 41, 10–20. <https://doi.org/10.1016/j.ijhm.2014.03.002>
- Jo, M., & Shin, J. (2017). Market strategy for promoting green consumption: Consumer preference and policy implications for laundry detergent. *International Journal of Consumer Studies*, 41, 283–290. <https://doi.org/10.1111/ijcs.12339>
- Johnstone, M. L., & Tan, L. P. (2015). Exploring the Gap Between Consumers' Green

- Rhetoric and Purchasing Behaviour. *Journal of Business Ethics*, 132, 311–328.  
<https://doi.org/10.1007/s10551-014-2316-3>
- Joshi, Y., & Rahman, Z. (2015). Factors Affecting Green Purchase Behaviour and Future Research Directions. In *International Strategic Management Review* (Vol. 3, Issues 1–2). Holy Spirit University of Kaslik. <https://doi.org/10.1016/j.ism.2015.04.001>
- Joshi, Y., & Rahman, Z. (2016). Predictors of young consumer's green purchase behaviour. *Management of Environmental Quality: An International Journal*, 27(4), 452–472.  
<https://doi.org/10.1108/MEQ-05-2015-0091>
- Kämmer, J. E., Gaissmaier, W., Reimer, T., & Schermuly, C. C. (2014). The adaptive use of recognition in group decision making. *Cognitive Science*, 38(5), 911–942.  
<https://doi.org/10.1111/cogs.12110>
- Kao, T. F., & Du, Y. Z. (2020). A study on the influence of green advertising design and environmental emotion on advertising effect. *Journal of Cleaner Production*, 242, 118294. <https://doi.org/10.1016/j.jclepro.2019.118294>
- Kendall, H. W. U. of C. S. (1992). *World Scientists' Warning to Humanity* (pp. 1–4).  
<https://doi.org/10.1017/S1052703600004573>
- Khan, S. A., Kusi-Sarpong, S., Arhin, F. K., & Kusi-Sarpong, H. (2018). Supplier sustainability performance evaluation and selection: A framework and methodology. *Journal of Cleaner Production*, 205, 964–979.  
<https://doi.org/10.1016/j.jclepro.2018.09.144>
- Khare, A. (2015). Antecedents to green buying behaviour: A study on consumers in an emerging economy. *Marketing Intelligence and Planning*, 33(3), 309–329.  
<https://doi.org/10.1108/MIP-05-2014-0083>
- Khare, A., & Varshneya, G. (2017). Antecedents to organic cotton clothing purchase behaviour: study on Indian youth. *Journal of Fashion Marketing and Management*, 21(1), 51–69. <https://doi.org/10.1108/JFMM-03-2014-0021>
- Kim, Bowon, Park, K., & Swink, M. (2014). Consumers' preferences for facets of green supply chain management. *International Journal of Services and Operations Management*, 18(1), 74–98.
- Kim, Byungdoo, & Schuldt, J. P. (2018). Judging the environmental impact of green

- consumption: Evidence of quantity insensitivity. *Journal of Environmental Psychology*, 60(June), 122–127. <https://doi.org/10.1016/j.jenvp.2018.10.005>
- Kim, G. (2015). *Consumer inferences of Corporate Social responsibility (CSR) claims on packaged foods*. Purdue University.
- Kim, H., & Lee, C. (2018). The Effects of Customer Perception and Participation in Sustainable Supply Chain Management: A Smartphone Industry Study. *Sustainability*, 10(7), 2271. <https://doi.org/10.3390/su10072271>
- Kim, J. H., Youn, S., & Roh, J. J. (2011). Green Supply Chain Management orientation and firm performance: evidence from South Korea. *International Journal of Services and Operations Management*, 8(3), 283–304. <https://doi.org/10.1504/IJSOM.2011.038973>
- Kim, Y., & Choi, S. M. (2005). Antecedents of Green Purchase Behavior: An Examination of Collectivism, Environmental Concern, and PCE. *Advances in Consumer Research*, 32, 592–599. <https://doi.org/10.1086/429607>
- Kim, Y. J., Njite, D., & Hancer, M. (2013). Anticipated emotion in consumers' intentions to select eco-friendly restaurants: Augmenting the theory of planned behavior. *International Journal of Hospitality Management*, 34, 255–262. <https://doi.org/10.1016/j.ijhm.2013.04.004>
- Kim, Y. J., Palakurthi, R., & Hancer, M. (2012). The Environmentally Friendly Programs in Hotels and Customers' Intention to Stay: An Online Survey Approach. *International Journal of Hospitality and Tourism Administration*, 13, 195–214. <https://doi.org/10.1080/15256480.2012.698169>
- Klecka, W. R. (1980). Discriminant Analysis. In *Quantitative Applications in the Social Sciences* (1st Editio). Sage Publications, Inc. <https://doi.org/10.4135/9781412983938>
- Klein, F., Emberger-Klein, A., Menrad, K., Möhring, W., & Blesin, J. M. (2019). Influencing factors for the purchase intention of consumers choosing bioplastic products in Germany. *Sustainable Production and Consumption*, 19, 33–43. <https://doi.org/10.1016/j.spc.2019.01.004>
- Klein, J., & Dawar, N. (2004). Corporate social responsibility and consumers' attributions and brand evaluations in a product-harm crisis. *International Journal of Research in Marketing*, 21(3), 203–217. <https://doi.org/10.1016/j.ijresmar.2003.12.003>

- Knemeyer, A. M., & Naylor, R. W. (2011). Using Behavioral Experiments to Expand Our Horizon and Deepen Our Understanding of Logistics and Supply Chain Decision Making. *Journal of Business Logistics*, 32(4), 296–302. <https://doi.org/10.1111/j.0000-0000.2011.01025.x>
- Ko, E., Hwang, Y. K., & Kim, E. Y. (2013). Green marketing' functions in building corporate image in the retail setting. *Journal of Business Research*, 66, 1709–1715. <https://doi.org/10.1016/j.jbusres.2012.11.007>
- Kulshreshtha, K., Bajpai, N., Tripathi, V., & Sharma, G. (2019). Consumer preference for eco-friendly appliances in trade-off: A conjoint analysis approach. *International Journal of Product Development*, 23(2–3), 212–243. <https://doi.org/10.1504/ijpd.2019.099237>
- Kumar, B., Manrai, A. K., & Manrai, L. A. (2017). Purchasing behaviour for environmentally sustainable products: A conceptual framework and empirical study. *Journal of Retailing and Consumer Services*, 34, 1–9. <https://doi.org/10.1016/j.jretconser.2016.09.004>
- Kumar, S., Luthra, S., & Haleem, A. (2014). Critical success factors of customer involvement in greening the supply chain: An empirical study. *International Journal of Logistics Systems and Management*, 19(3), 283–310. <https://doi.org/10.1504/IJLSM.2014.065498>
- Kumar, V., Holt, D., Ghobadian, A., & Garza-Reyes, J. A. (2014). Developing green supply chain management taxonomy-based decision support system. *International Journal of Production Research*, 53(21), 6372–6389. <https://doi.org/10.1080/00207543.2014.917215>
- Kwok, L., Huang, Y. K., & Hu, L. (2016). Green attributes of restaurants: What really matters to consumers? *International Journal of Hospitality Management*, 55, 107–117. <https://doi.org/10.1016/j.ijhm.2016.03.002>
- Laari, S., Töyli, J., Solakivi, T., & Ojala, L. (2016). Firm performance and customer-driven green supply chain management. *Journal of Cleaner Production*, 112, 1960–1970. <https://doi.org/10.1016/j.jclepro.2015.06.150>
- Lazzarini, G. A., Zimmermann, J., Visschers, V. H. M., & Siegrist, M. (2016). Does

- environmental friendliness equal healthiness? Swiss consumers' perception of protein products. *Appetite*, *105*, 663–673. <https://doi.org/10.1016/j.appet.2016.06.038>
- Lee, C., & Lim, S. (2020). Impact of Environmental Concern on Image of Internal GSCM Practices and Consumer Purchasing Behavior. *The Journal of Asian Finance, Economics and Business*, *7*(6), 241–254. <https://doi.org/10.13106/jafeb.2020.vol7.no6>.
- Lee, J., Bhatt, S., & Suri, R. (2018). When consumers penalize not so green products. *Psychology and Marketing*, *35*, 36–46. <https://doi.org/10.1002/mar.21069>
- Lee, S. (2008). Drivers for the participation of small and medium-sized suppliers in green supply chain initiatives. *Supply Chain Management: An International Journal*, *13*(3), 185–198. <https://doi.org/10.1108/13598540810871235>
- Leguízamo-Díaz, T. P., & Moreno-Mantilla, C. E. (2014). Effect of competitive priorities on the greening of the supply chain with TQM as a mediator. *Dyna*, *81*(187), 240–248. <https://doi.org/10.15446/dyna.v81n187.46106>
- Leonhardt, D. (2018, August 1). Climate Change's Raging Wildfires. *The New York Times*. <https://www.nytimes.com/2018/08/01/opinion/columnists/california-wildfires-climate-change.html>
- Leroi-Werelds, S., Streukens, S., Van Vaerenbergh, Y., & Grönroos, C. (2017). Does communicating the customer's resource integrating role improve or diminish value proposition effectiveness? *Journal of Service Management*, *28*(4), 618–639. <https://doi.org/10.1108/JOSM-11-2015-0366>
- Li, J., Moul, C. C., & Zhang, W. (2017). Hoping grey goes green: air pollution's impact on consumer automobile choices. *Marketing Letters*, *28*, 267–279. <https://doi.org/10.1007/s11002-016-9405-2>
- Lin, P. C., & Huang, Y. H. (2012). The influence factors on choice behavior regarding green products based on the theory of consumption values. *Journal of Cleaner Production*, *22*(1), 11–18. <https://doi.org/10.1016/j.jclepro.2011.10.002>
- Liu, S., Kasturiratne, D., & Moizer, J. (2012). A hub-and-spoke model for multi-dimensional integration of green marketing and sustainable supply chain management. *Industrial Marketing Management*, *41*, 581–588. <https://doi.org/10.1016/j.indmarman.2012.04.005>

- Luchs, M. G., Naylor, R. W., & Irwin, J. R. (2010). The Sustainability Liability: Potential Negative Effects of Ethicality on Product Preference. *Journal of Marketing*, *74*, 18–31.
- Luthra, S., & Mangla, S. K. (2018). When strategies matter: Adoption of sustainable supply chain management practices in an emerging economy's context. *Resources, Conservation and Recycling*, *138*, 194–206. <https://doi.org/10.1016/j.resconrec.2018.07.005>
- MacDonald, C. (2018, August 29). Heat wave hits Quebec farmers where it hurts — right in the crops. *Global News*. <https://globalnews.ca/news/4417404/heat-wave-hits-quebec-farmers-crops/>
- Macdonald, E. F., & She, J. (2015). Seven cognitive concepts for successful eco-design. *Journal of Cleaner Production*, *92*, 23–36. <https://doi.org/10.1016/j.jclepro.2014.12.096>
- Maditati, D. R., Munim, Z. H., Schramm, H.-J., & Kummer, S. (2018). A review of green supply chain management: From bibliometric analysis to a conceptual framework and future research directions. *Resources, Conservation and Recycling*, *139*, 150–162. <https://doi.org/10.1016/J.RESCONREC.2018.08.004>
- Magnier, L., & Schoormans, J. (2015). Consumer reactions to sustainable packaging: The interplay of visual appearance, verbal claim and environmental concern. *Journal of Environmental Psychology*, *44*, 53–62. <https://doi.org/10.1016/j.jenvp.2015.09.005>
- Málovics, G., Csigéné, N. N., & Kraus, S. (2008). The role of corporate social responsibility in strong sustainability. *Journal of Socio-Economics*, *37*(3), 907–918. <https://doi.org/10.1016/j.socec.2006.12.061>
- Marshall, D., McCarthy, L., Heavey, C., & McGrath, P. (2014). Environmental and social supply chain management sustainability practices: Construct development and measurement. *Production Planning and Control*, *26*(8), 673–690. <https://doi.org/10.1080/09537287.2014.963726>
- Martínez, P. (2015). Customer loyalty: Exploring its antecedents from a green marketing perspective. *International Journal of Contemporary Hospitality Management*, *27*(5), 896–917. <https://doi.org/10.1108/IJCHM-03-2014-0115>
- Masoumik, S. M., Abdul-Rashid, S. H., Olugu, E. U., & Raja Ghazilla, R. A. (2014).

- Sustainable supply chain design: A configurational approach. *The Scientific World Journal*, 2014. <https://doi.org/10.1155/2014/897121>
- McFadden, D. (1999). Rationality for Economists? *Journal of Risk and Uncertainty*, 19(1/3), 73–105. <https://doi.org/10.1023/A:1007863007855>
- Mcgraw, A. P., Davis, D. F., Scott, S. E., & Tetlock, P. E. (2016). The price of not putting a price on love. *Judgment and Decision Making*, 11(1), 40–47. <http://journal.sjdm.org/15/15813/jdm15813.pdf>
- McGuinness, D., Brennan, M., & Gendall, P. (1995). The Effect of Product Sampling and Couponing on Purchase Behaviour: Some Empirical Evidence. *International Journal of Advertising*, 14(3), 219–230. <https://doi.org/10.1080/02650487.1995.11104613>
- Mejía-Restrepo, P. (2018). *Medición de impacto del 'marketing con causa' en la disposición a pagar más por parte de los consumidores bogotanos*. Colegio de Estudios Superiores de Administración - CESA.
- Mitchell, R. K., Agle, B. R., & Wood, D. J. (1997). Toward a Theory of Stakeholder Identification and Salience: Defining the Principle of who and What Really Counts. *Academy of Management Review*, 22(4), 853–886. <https://doi.org/10.5465/amr.1997.9711022105>
- Mohd Noor, M. N., Masuod, M. S., Abu Said, A. M., Kamaruzaman, I. F., & Mustafa, M. A. (2016). Understanding consumers and green product purchase decision in Malaysia: A structural equation modeling - partial least square (SEM-PLS) approach. *Asian Social Science*, 12(9), 51–64. <https://doi.org/10.5539/ass.v12n9p51>
- Mohr, L. A., Webb, D. J., & Harris, K. E. (2001). Do Consumers Expect Companies to be Socially Responsible? The Impact of Corporate Social Responsibility on Buying Behavior Responsible. *The Journal of Consumers Affairs*, 35(1), 45–72. <https://onlinelibrary.wiley.com/doi/abs/10.1111/deci.12369>
- Montoya, Amanda K, & Hayes, A. F. (2016). Two-Condition Within-Participant Statistical Mediation Analysis: A Path-Analytic Framework. *Psychological Methods*, 22(1), 6–27. [https://psycnet.apa.org/journals/met/22/1/6/?casa\\_token=DaI\\_M1rWCd0AAAAA:0pHF\\_\\_qL1B7grLG972niyt3kTUW8GsmL7qC8P7aV88gUwXvnFyv4pVpnmxiS5kQI-](https://psycnet.apa.org/journals/met/22/1/6/?casa_token=DaI_M1rWCd0AAAAA:0pHF__qL1B7grLG972niyt3kTUW8GsmL7qC8P7aV88gUwXvnFyv4pVpnmxiS5kQI-)

- sRa4lxpU\_Ujf\_-ZQKIrQOiA
- Montoya, Amanda Kay. (2019). Moderation analysis in two-instance repeated measures designs: Probing methods and multiple moderator models. *Behavior Research Methods*, 51(1), 61–82. <https://doi.org/10.3758/s13428-018-1088-6>
- Moore, D. J., & Homer, P. M. (2008). Self-brand connections: The role of attitude strength and autobiographical memory primes. *Journal of Business Research*, 61(7), 707–714. <https://doi.org/10.1016/j.jbusres.2007.09.002>
- Moorman, C., Zaltman, G., & Deshpande, R. (1992). Relationships between Providers and Users of Market Research: The Dynamics of Trust within and between Organizations. *Journal of Marketing Research*, 29(3), 314–328. <https://doi.org/10.2307/3172742>
- Moreno-Mantilla, C. E., Mejía-Salazar, I. S., Loaiza-Ramírez, J. P., Leguízamo-Díaz, T. P., & Romero-Larrahondo, P. A. (2018). Development and Validation of a Green Supply Chain Management Taxonomy in Colombian SMEs. In B. Sánchez Lara, R. Torres Mendoza, & J. Gómez Maturano (Eds.), *International Congress on Logistics & Supply Chain – CiLOG* (pp. 361–368). Asociación Mexicana de Logística y Cadenas de Suministro, A.C.
- Moscoso-Duran, F. F., & Mancha-Navarro, T. (2018). The economics sustainability in medium and small companies in Colombia (SMEs). *Handbook of Research on Intrapreneurship and Organizational Sustainability in SMEs*, April 2018, 342–367. <https://doi.org/10.4018/978-1-5225-3543-0.ch016>
- Moser, A. K. (2015). Thinking green, buying green? Drivers of pro - Environmental purchasing behavior. *Journal of Consumer Marketing*, 32(3), 167–175. <https://doi.org/10.1108/JCM-10-2014-1179>
- Moser, A. K. (2016). Consumers' purchasing decisions regarding environmentally friendly products: An empirical analysis of German consumers. *Journal of Retailing and Consumer Services*, 31, 389–397. <https://doi.org/10.1016/j.jretconser.2016.05.006>
- Muñetón-Santa, G., Vanegas-López, J. G., Valencia-Cárdenas, M., & Restrepo-Morales, J. A. (2017). Gaps between habit and attitude in the consumption of PET-packaged beverages in Medellín-Colombia. *Producción + Limpia*, 12(2), 118–130. <https://doi.org/10.22507/pml.v12n1a10>

- Nam, C., Dong, H., & Lee, Y.-A. (2017). Factors influencing consumers' purchase intention of green sportswear. *Fashion and Textiles*, 4(2), 1–17. <https://doi.org/10.1186/s40691-017-0091-3>
- Namkung, Y., & Jang, S. (Shawn). (2017). Are Consumers Willing to Pay more for Green Practices at Restaurants? *Journal of Hospitality and Tourism Research*, 41(3), 329–356. <https://doi.org/10.1177/1096348014525632>
- Narula, S. A., & Desore, A. (2016). Framing green consumer behaviour research: Opportunities and challenges. *Social Responsibility Journal*, 12(1), 1–22. <https://doi.org/10.1108/SRJ-08-2014-0112>
- Nash, N., & Lewis, A. (2006). Overcoming obstacles to ecological citizenship: the dominant social paradigm and local environmentalism. In A. Dobson & D. Bell (Eds.), *Environmental Citizenship* (pp. 153–184). MIT Press. <http://orca.cf.ac.uk/id/eprint/57564>
- Nassivera, F., & Sillani, S. (2017). Consumer Behavior Toward Eco-Labeled Minimally Processed Fruit Product. *Journal of International Food and Agribusiness Marketing*, 29(1), 29–45. <https://doi.org/10.1080/08974438.2016.1241734>
- Nguyen, T. N., Lobo, A., & Nguyen, B. K. (2018). Young consumers' green purchase behaviour in an emerging market. *Journal of Strategic Marketing*, 26(7), 583–600. <https://doi.org/10.1080/0965254X.2017.1318946>
- Nguyen, T. N., Phan, T. T. H., Cao, T. K., & Nguyen, H. V. (2017). Green purchase behavior: mitigating barriers in developing countries. *Strategic Direction*, 33(8), 4–6. <https://doi.org/10.1108/SD-04-2017-0064>
- Nisbett, R. E., & Wilson, T. D. (1977). The Halo Effect: Evidence for Unconscious Alteration of Judgments. In *Journal of Personality and Social Psychology* (Vol. 35, Issue 4). <https://deepblue.lib.umich.edu/bitstream/handle/2027.42/92158/TheHaloEffect.pdf>
- O'Rourke, D. (2014). The science of sustainable supply chains. *Science*, 344(6188), 1124–1127.
- Oliver, J. D. (2007). *Increasing the Adoption of Environmentally Friendly Products: Who Are the Non-Adopters, and What Will Get Them to Buy Green?* University of Rhode

- Island.
- Olsen, M. C., Slotegraaf, R. J., & Chandukala, S. R. (2014). Green Claims and Message Frames: How Green New Products Change Brand Attitude. *Journal of Marketing*, 78(5), 119–137. <https://doi.org/10.1509/jm.13.0387>
- Otto, I. M., Donges, J. F., Cremades, R., Bhowmik, A., Hewitt, R. J., Lucht, W., Rockström, J., Allerberger, F., McCaffrey, M., Doe, S. S. P., Lenferna, A., Morán, N., van Vuuren, D. P., & Schellnhuber, H. J. (2020). Social tipping dynamics for stabilizing Earth's climate by 2050. *Proceedings of the National Academy of Sciences of the United States of America*, 117(5), 2354–2365. <https://doi.org/10.1073/pnas.1900577117>
- Pagell, M., & Shevchenko, A. (2014). Why research in sustainable supply chain management should have no future. *Journal of Supply Chain Management*, 50(1), 44–55. <https://doi.org/10.1111/jscm.12037>
- Pakseresht, A., & Mark-Herbert, C. (2014). Leveraging brand value through corporate responsibility. *International Journal of Sustainable Development*, 17(3), 281–297.
- Pancer, E., McShane, L., & Noseworthy, T. J. (2017). Isolated Environmental Cues and Product Efficacy Penalties: The Color Green and Eco-labels. *Journal of Business Ethics*, 143(1), 159–177. <https://doi.org/10.1007/s10551-015-2764-4>
- Papadopoulos, I., Karagouni, G., Trigkas, M., & Platogianni, E. (2010). Green marketing the case of greece in certified and sustainably managed timber products. *EuroMed Journal of Business*, 5(2), 166–190. <https://doi.org/10.1108/14502191011065491>
- Paul, J., Modi, A., & Patel, J. (2016). Predicting green product consumption using theory of planned behavior and reasoned action. *Journal of Retailing and Consumer Services*, 29, 123–134. <https://doi.org/10.1016/j.jretconser.2015.11.006>
- Persky, J. (1995). Retrospectives: The Ethology of Homo Economicus. *Journal of Economic Perspectives*, 9(2), 221–321. <https://doi.org/10.2307/2138175>
- Petersen, M., & Brockhaus, S. (2017). Dancing in the dark: Challenges for product developers to improve and communicate product sustainability. *Journal of Cleaner Production*, 161, 345–354. <https://doi.org/10.1016/j.jclepro.2017.05.127>
- Peterson, R. A., & Merunka, D. R. (2014). Convenience samples of college students and research reproducibility. *Journal of Business Research*, 67(5), 1035–1041.

<https://doi.org/10.1016/j.jbusres.2013.08.010>

- Prakash, G., & Pathak, P. (2017). Intention to buy eco-friendly packaged products among young consumers of India: A study on developing nation. *Journal of Cleaner Production*, *141*, 385–393. <https://doi.org/10.1016/j.jclepro.2016.09.116>
- Pudaruth, S., Juwaheer, T. D., & Seewoo, Y. D. (2015). Gender-based differences in understanding the purchasing patterns of eco-friendly cosmetics and beauty care products in Mauritius: A study of female customers. *Social Responsibility Journal*, *11*(1), 179–198. <https://doi.org/10.1108/SRJ-04-2013-0049>
- Quintero-Arango, L. F., & Martínez-Gómez, J. (2018). Neuromarketing in advertising and its impact on the consumer of the retail sector of the Medellín City (Colombia). *Espacios*, *39*(16), 22.
- Quiroga-Calderón, L. M. (2018). *Influencia de la integración con partes interesadas externas secundarias en la implementación de prácticas ambientales de cadena de suministro en Pymes colombianas*. Universidad Nacional de Colombia.
- Quiroga-Calderón, L. M., Mejía-Salazar, I. S., Moreno-Mantilla, C. E., & Loaiza-Ramírez, J. P. (2018). Integration with Secondary Stakeholders and Its Relationship with Sustainable Supply Chain Practices in Colombian SMES. *European Journal of Sustainable Development*, *7*(4), 131–145. <https://doi.org/10.14207/ejsd.2018.v7n4p131>
- Rahnama, H., & Rajabpour, S. (2017). Identifying effective factors on consumers' choice behavior toward green products: the case of Tehran, the capital of Iran. *Environmental Science and Pollution Research*, *24*, 911–925. <https://doi.org/10.1007/s11356-016-7791-x>
- Raiborn, C., Payne, D., & Joyner, B. (2013). Environmentally Friendly Business Strategies: BP – A Case of Rhetoric or Reality? *Journal of Business and Management*, *19*(2), 67–89.
- Rajeev, A., Pati, R. K., Padhi, S. S., & Govindan, K. (2017). Evolution of sustainability in supply chain management: A literature review. *Journal of Cleaner Production*, *162*, 299–314. <https://doi.org/10.1016/j.jclepro.2017.05.026>
- Reich, A. Z., Xu, Y. H., & McCleary, K. W. (2010). The Influence of Social Responsibility

- Image Relative to Product and Service Quality on Brand Loyalty: An Exploratory Study of Quick-service Restaurants. *Hospitality Review*, 28(1), 20–50.
- Reimer, T., & Hoffrage, U. (2006). The ecological rationality of simple group heuristics: Effects of group member strategies on decision accuracy. *Theory and Decision*, 60(4), 403–438. <https://doi.org/10.1007/s11238-005-4750-2>
- Reimer, T., & Katsikopoulos, K. V. (2004). The use of recognition in group decision-making. *Cognitive Science*, 28, 1009–1029. <https://doi.org/10.1111/cogs.12110>
- Reinhardt, F. (1998). Environmental Product Differentiation: Implications for Corporate Strategy. *California Management Review*, 4(4), 43–73.
- Reinhardt, F. (2000). *Down to Earth: Applying Business Principles to Environmental Management*. Harvard Business Review Press.
- Ripple, W. J., Wolf, C., Newsome, T. M., Barnard, P., & Moomaw, W. R. (2020). World Scientists' Warning of a Climate Emergency. *BioScience*, 70(1), 8–12. <https://doi.org/10.1093/biosci/biz088>
- Ripple, W. J., Wolf, C., Newsome, T. M., Galetti, M., Alamgir, M., Crist, E., Mahmoud, M. I., Laurance, W. F., & 15, 364 scientist signatories from 184 countries. (2017). World Scientists' Warning to Humanity: A Second Notice. *BioScience*, 67(12), 1026–1028. <https://doi.org/10.1093/biosci/bix125>
- Ritter, Á. M., Borchardt, M., Vaccaro, G. L. R., Pereira, G. M., & Almeida, F. (2015). Motivations for promoting the consumption of green products in an emerging country: Exploring attitudes of Brazilian consumers. *Journal of Cleaner Production*, 106, 507–520. <https://doi.org/10.1016/j.jclepro.2014.11.066>
- Rodríguez-Ibeas, R. (2007). Environmental product differentiation and environmental awareness. *Environmental and Resource Economics*, 36(2), 237–254. <https://doi.org/10.1007/s10640-006-9026-y>
- Roe, B., Teisl, M. F., Levy, A., & Russell, M. (2001). US consumers' willingness to pay for green electricity. *Energy Policy*, 29, 917–925. [https://doi.org/10.1016/S0301-4215\(01\)00006-4](https://doi.org/10.1016/S0301-4215(01)00006-4)
- Rokka, J., & Uusitalo, L. (2008). Preference for green packaging in consumer product choices – Do consumers care? *International Journal of Consumer Studies*, 32, 516–

525. <https://doi.org/10.1111/j.1470-6431.2008.00710.x>

- Rottman, J., Kelemen, D., & Young, L. (2015). Hindering harm and preserving purity: How can moral psychology save the planet? *Philosophy Compass*, *10*(2), 134–144. <https://doi.org/10.1111/phc3.12195>
- Rowlands, I. H., Parker, P., & Scott, D. (2002). Consumer perceptions of “green power.” *Journal of Consumer Marketing*, *19*(2), 112–129. <https://doi.org/10.1108/07363760210420540>
- Roy, V., Schoenherr, T., & Charan, P. (2018). The thematic landscape of literature in sustainable supply chain management (SSCM). A review of the principal facets in SSCM development. *International Journal of Operations & Production Management*, *38*(4), 1091–1124.
- Russell, T., & Reimer, T. (2019). Persuasion and Semantic Network Structure: Testing Message Effects of Attribute Centrality on Decision Making under Uncertainty. *Southern Communication Journal*, *84*(1), 30–43. <https://doi.org/10.1080/1041794X.2018.1525618>
- Saini, G. K., & Sahay, A. (2014). Comparing retail formats in an emerging market: Influence of credit and low price guarantee on purchase intention. *Journal of Indian Business Research*, *6*(1), 48–69. <https://doi.org/10.1108/JIBR-03-2013-0026>
- Sajjad, A. (2019). Greening the Supply Chain: A Framework for Best Practices. In G. Eweje & R. Bathurst (Eds.), *Clean, Green and Responsible?* (pp. 191–209). Springer. <https://doi.org/10.1007/978-3-030-21436-4>
- Salcedo-Pérez, C., & Serna, C. A. (2018). Green Behavior of Middle Income Population in Bogota, Colombia: A Study in the Locality of Fontibon. *Electronic Green Journal*, *1*(41), 13.
- Saleem, M. A., Eagle, L., & Low, D. (2018). Market segmentation based on eco-socially conscious consumers' behavioral intentions: Evidence from an emerging economy. *Journal of Cleaner Production*, *193*, 14–27. <https://doi.org/10.1016/j.jclepro.2018.05.067>
- Salomon, E., Preston, J. L., & Tannenbaum, M. B. (2017). Climate change helplessness and the (De)moralization of individual energy behavior. *Journal of Experimental*

- Psychology: Applied*, 23(1), 15–28. <https://doi.org/10.1037/xap0000105>
- Samenow, J. (2018, August 28). Climate change ‘switchboard’ visualization shows every country on the planet turning red-hot. *The Washington Post*. [https://www.washingtonpost.com/news/capital-weather-gang/wp/2018/08/28/climate-change-switchboard-shows-every-country-on-the-planet-turning-red-hot/?noredirect=on&utm\\_term=.2e6e868d2934](https://www.washingtonpost.com/news/capital-weather-gang/wp/2018/08/28/climate-change-switchboard-shows-every-country-on-the-planet-turning-red-hot/?noredirect=on&utm_term=.2e6e868d2934)
- Sarache-Castro, W. A., Costa-Salas, Y. J., & Martínez-Giraldo, J. P. (2015). Environmental performance evaluation under a green supply chain approach. *Dyna*, 82(189), 207–215. <https://doi.org/10.15446/dyna.v82n189.48550>
- Saremi, H., Nezhad, B. M., & Tavakoli, M. (2014). A study on impact of green marketing mixed on consumers purchasing behavior – case study on consumers of dairy products in scientific & applied education center bicycle production complex of Quchan, Iran. *Ecology, Environment and Conservation*, 20(3), 1343–1352.
- Sarkis, J. (2014). *Green Supply Chain Management*. ASME Press.
- Sarkis, J. (2018). Sustainable and green supply chains: Advancement through Resources, Conservation and Recycling. *Resources, Conservation and Recycling*, 134(January), A1–A3. <https://doi.org/10.1016/j.resconrec.2017.12.022>
- Sarkis, J., & Dou, Y. (2018). *Green supply chain management: a concise introduction* (1 Edition). Routledge.
- Schuldt, J. P., Muller, D., & Schwarz, N. (2012). The “Fair Trade” Effect: Health Halos From Social Ethics Claims. *Social Psychological and Personality Science*, 3(5), 581–589. <https://doi.org/10.1177/1948550611431643>
- Scott, W. R. (1987). The Adolescence of Institutional Theory. *Administrative Science Quarterly*, 32(4), 493. <https://doi.org/10.2307/2392880>
- Scur, G., & Barbosa, M. E. (2017). Green supply chain management practices: Multiple case studies in the Brazilian home appliance industry. *Journal of Cleaner Production*, 141, 1293–1302. <https://doi.org/10.1016/j.jclepro.2016.09.158>
- Semana Sostenible. (2015, August 2). Dime cómo compras y te diré en qué crees. *Semana.Com*. <https://sostenibilidad.semana.com/medio-ambiente/multimedia/consumo-responsable-en-colombia-primera-encuesta-nacional->

dime-que-compras-y-te-dire-quien-eres/33535

- Sen, S., & Bhattacharya, C. B. (2001). Does Doing Good Always Lead to Doing Better? Consumer Reactions to Corporate Social Responsibility. *Journal of Marketing Research*, 38(2), 225–243. <https://doi.org/10.1509/jmkr.38.2.225.18838>
- Serafimova, J. (2016). *Environmental Concern and Sustainable Consumer Behavior Among Macedonian Consumers*. University of Ljubljana.
- Sexton, S. E., & Sexton, A. L. (2014). Conspicuous conservation: The Prius halo and willingness to pay for environmental bona fides. *Journal of Environmental Economics and Management*, 67(3), 303–317. <https://doi.org/10.1016/j.jeem.2013.11.004>
- Shang, K.-C., Lu, C.-S., & Li, S. (2010). A taxonomy of green supply chain management capability among electronics-related manufacturing firms in Taiwan. *Journal of Environmental Management*, 91(5), 1218–1226. <https://doi.org/10.1016/J.JENVMAN.2010.01.016>
- Shaw, D., Newholm, T., & Dickinson, R. (2006). Consumption as voting: An exploration of consumer empowerment. *European Journal of Marketing*, 40(9–10), 1049–1067. <https://doi.org/10.1108/03090560610681005>
- Sheehan, K. B., & Lee, J. (2014). What's Cruel About Cruelty Free: An Exploration of Consumers, Moral Heuristics, and Public Policy. *Journal of Animal Ethics*, 4(2), 1–15. <http://www.jstor.org/stable/10.5406/janimalethics.4.2.0001>
- Sheikh, H., Ginges, J., Coman, A., & Atran, S. (2012). Religion, group threat and sacred values. *Judgment and Decision Making*, 7(2), 110–118.
- Shin, Y., & Thai, V. V. (2016). A study of the influence of sustainable management activities on customer satisfaction and long-term orientation in the shipping industry: evidence from users of Korean flagged shipping service. *International Journal of Shipping and Transport Logistics*, 8(1), 1–20.
- Shrum, L. J., McCarty, J. A., & Lowrey, T. M. (1995). Buyer characteristics of the green consumer and their implications for advertising strategy. *Journal of Advertising*, 24(2), 71–82. <https://doi.org/10.1080/00913367.1995.10673477>
- Siwayanan, P., Bakar, N. A., Aziz, R., & Chelliapan, S. (2015). Exploring malaysian household consumers acceptance towards eco-friendly laundry detergent powders.

- Asian Social Science*, 11(9), 125–137. <https://doi.org/10.5539/ass.v11n9p125>
- Smith, A. D. (2012). Green Supply Chain Management and consumer sensitivity to greener and leaner options in the automotive industry. *International Journal of Logistics Systems and Management*, 12(1), 1–31. <https://doi.org/10.1504/IJLSM.2012.047056>
- Sony, A., Ferguson, D., & Beise-Zee, R. (2015). How to go green: Unraveling green preferences of consumers. *Asia-Pacific Journal of Business Administration*, 7(1), 56–72. <https://doi.org/10.1108/APJBA-06-2013-0067>
- Sörqvist, P., Haga, A., Holmgren, M., & Hansla, A. (2015). An eco-label effect in the built environment: Performance and comfort effects of labeling a light source environmentally friendly. *Journal of Environmental Psychology*, 42, 123–127. <https://doi.org/10.1016/j.jenvp.2015.03.004>
- Sörqvist, P., Haga, A., Langeborg, L., Holmgren, M., Wallinder, M., Nösl, A., Seager, P. B., & Marsh, J. E. (2015). The green halo: Mechanisms and limits of the eco-label effect. *Food Quality and Preference*, 43, 1–9. <https://doi.org/10.1016/j.foodqual.2015.02.001>
- Spratt, D., & Dunlop, I. (2019). *Existential climate-related security risk: A scenario approach* (Issue May).
- Srivastava, S. K. (2007). Green supply-chain management: A state-of-the-art literature review. *International Journal of Management Reviews*, 9(1), 53–80. <https://doi.org/10.1111/j.1468-2370.2007.00202.x>
- Steffen, W., Rockström, J., Richardson, K., Lenton, T. M., Folke, C., Liverman, D., Summerhayes, C. P., Barnosky, A. D., Cornell, S. E., Crucifix, M., Donges, J. F., Fetzer, I., Lade, S. J., Scheffer, M., Winkelmann, R., & Schellnhuber, H. J. (2018). Trajectories of the Earth System in the Anthropocene. *Proceedings of the National Academy of Sciences*, 115(33), 8252–8259. <https://doi.org/10.1073/pnas.1810141115>
- Stentoft, J., & Rajkumar, C. (2018). Balancing theoretical and practical relevance in supply chain management research. *International Journal of Physical Distribution and Logistics Management*, 48(5), 504–523. <https://doi.org/10.1108/IJPDLM-01-2018-0020>
- Strohmeier, D., & Tenenbaum, H. (2019). *Young people's visions and worries for the future*

- of Europe: findings from the Europe 2038 project* (D. Strohmeier & H. Tenenbaum (eds.); 1st Editio). Routledge.
- Suki, N. M. (2013). Green awareness effects on consumers' purchasing decision: Some insights from Malaysia. *International Journal of Asia-Pacific Studies*, 9(2), 49–63.
- Tabares-Osorio, E., & Zuluaga-Orozco, L. (2014). *Caracterización del consumidor responsable en Colombia: caso de estudio Medellín*. Escuela de Ingeniería de Antioquia.
- Taber, K. S. (2018). The Use of Cronbach's Alpha When Developing and Reporting Research Instruments in Science Education. *Research in Science Education*, 48(6), 1273–1296. <https://doi.org/10.1007/s11165-016-9602-2>
- Tang, S., Arciniegas, C., Yu, F., Han, J., Chen, S., & Shi, J. (2016). Taste moral, taste good: The effects of Fairtrade logo and second language on product taste evaluation. *Food Quality and Preference*, 50, 152–156. <https://doi.org/10.1016/j.foodqual.2016.02.011>
- Tascioglu, M. (2014). *Consumers' Perceptions Towards Sustainability: A Cross-Cultural Analysis*. Georgia Southern University.
- Taylor, N., & Noseworthy, T. J. (2020). Compensating for Innovation: Extreme Product Incongruity Encourages Consumers to Affirm Unrelated Consumption Schemas. *Journal of Consumer Psychology*, 30(1), 77–95. <https://doi.org/10.1002/jcpy.1127>
- Thomas, R. W. (2011). When student samples make sense in logistics research. *Journal of Business Logistics*, 32(3), 287–290. <https://doi.org/10.1111/j.2158-1592.2011.01023.x>
- Thompson, B. (2004). Exploratory and Confirmatory Factor Analysis: Understanding Concepts and Applications. In *Acta Geophysica* (Vol. 58, Issue 4). <https://www.apa.org/pubs/books/4316025?tab=1>
- Thongplew, N., Spaargaren, G., & van Koppen, C. S. A. K. (2017). Companies in search of the green consumer: Sustainable consumption and production strategies of companies and intermediary organizations in Thailand. *NJAS - Wageningen Journal of Life Sciences*, 83, 12–21. <https://doi.org/10.1016/j.njas.2017.10.004>
- Thorndike, E. L. (1920). A constant error in psychological ratings. *Journal of Applied Psychology*, 4(1), 25–29. <https://doi.org/10.1037/h0071663>
- Todd, P. M., & Gigerenzer, G. (2007). Environments That Make Us Smart. *Current*

- Directions in Psychological Science*, 16(3), 167–171. <https://doi.org/10.1111/j.1467-8721.2007.00497.x>
- Tokar, T. (2010). Behavioural research in logistics and supply chain management. *International Journal of Logistics Management*, 21(1), 89–103. <https://doi.org/10.1108/09574091011042197>
- Tolbert, P. S., & Zucker, L. G. (1996). The Institutionalization of Institutional Theory. In S. Clegg, C. Hardy, & W. Nord (Eds.), *Handbook of Organizational Studies* (pp. 175–190). SAGE. <https://doi.org/10.1177/0170840611425735>
- Trujillo Gallego, M. (2018). Indicador de desempeño ambiental bajo el enfoque GSCM: Validación en empresas manufactureras de la región del Eje cafetero. In *Biblioteca Digital Universidad Nacional de Colombia*. Universidad Nacional de Colombia.
- Tumpa, T. J., Ali, S. M., Rahman, M. H., Paul, S. K., Chowdhury, P., & Rehman Khan, S. A. (2019). Barriers to green supply chain management: An emerging economy context. *Journal of Cleaner Production*, 236, 117617. <https://doi.org/10.1016/j.jclepro.2019.117617>
- Uddin, S. M. F., & Khan, M. N. (2016). Green Purchasing Behaviour of Young Indian Consumers: An Exploratory Study. *Global Business Review*, 17(6), 1469–1479. <https://doi.org/10.1177/0972150916660440>
- Ülkü, M. A., & Hsuan, J. (2017). Towards sustainable consumption and production: Competitive pricing of modular products for green consumers. *Journal of Cleaner Production*, 142, 4230–4242. <https://doi.org/10.1016/j.jclepro.2016.11.050>
- UNFCCC. (2008). *Kyoto Protocol - Targets for the first commitment period*. United Nations Framework Convention on Climate Change. <https://unfccc.int/process/the-kyoto-protocol>
- UNFCCC. (2018). *The Paris Agreement*. United Nations Framework Convention on Climate Change. <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>
- Usrey, B., Palihawadana, D., Saridakis, C., & Theotokis, A. (2020). How Downplaying Product Greenness Affects Performance Evaluations: Examining the Effects of Implicit and Explicit Green Signals in Advertising. *Journal of Advertising*, 0(0), 1–16.

<https://doi.org/10.1080/00913367.2020.1712274>

- Vachon, S., & Klassen, R. D. (2006). Extending green practices across the supply chain. *International Journal of Operations & Production Management*, 26(7), 795–821. <https://doi.org/10.1108/01443570610672248>
- Vachon, S., & Klassen, R. D. (2008). Environmental management and manufacturing performance: The role of collaboration in the supply chain. *International Journal of Production Economics*, 111(2), 299–315. <https://doi.org/10.1016/j.ijpe.2006.11.030>
- Van Houtum, H., & Van Der Velde, M. (2004). De-politicising labour market indifference and immobility in the European Union. In *Cross-Border Governance in the European Union*, Routledge (pp. 41–55).
- Venhoeven, L. A., Bolderdijk, J. W., & Steg, L. (2016). Why acting environmentally-friendly feels good: Exploring the role of self-image. *Frontiers in Psychology*, 7(NOV), 1990–1991. <https://doi.org/10.3389/fpsyg.2016.01846>
- Villa Castaño, L. E., Perdomo-Ortiz, J., Dueñas Ocampo, S., & Durán León, W. F. (2016). Socially responsible consumption: an application in Colombia. *Business Ethics: A European Review*, 25(4), 460–481. <https://doi.org/10.1111/beer.12128>
- Vink, J. M., & Boomsma, D. I. (2008). A comparison of early and late respondents in a twin-family survey study. *Twin Research and Human Genetics*, 11(2), 165–173. <https://doi.org/10.1375/twin.11.2.165>
- Vischers, V. H. M., & Siegrist, M. (2014). Find the differences and the similarities: Relating perceived benefits, perceived costs and protected values to acceptance of five energy technologies. *Journal of Environmental Psychology*, 40, 117–130. <https://doi.org/10.1016/j.jenvp.2014.05.007>
- Vlosky, R. P., Ozanne, L. K., & Fontenot, R. J. (1999). A conceptual model of US consumer willingness-to-pay for environmentally certified wood products. *Journal of Consumer Marketing*, 16(2), 122–136.
- Walton, S., Handfield, R., & Melnyk, S. (1998). The Green Supply Chain: Integrating Suppliers into Environmental Management Processes. *International Journal of Purchasing and Materials Management*, 34(2), 2–11. <https://doi.org/10.1111/j.1745-493X.1998.tb00042.x>

- Winston, A. S. (2014). *The Big Pivot: Radically Practical Strategies for a Hotter, Scarcer, and More Open World* (First Edit). Harvard Business Review Press.
- Yin, S. (2018, August 17). Hundreds of Reindeer Died by Lightning. Their Carcasses Became a Laboratory. *The New York Times*. <https://www.nytimes.com/2018/08/17/science/reindeer-carcasses-lightning.html>
- Zhang, L., Chen, L., Wu, Z., Zhang, S., & Song, H. (2018). Investigating young consumers' purchasing intention of green housing in China. *Sustainability (Switzerland)*, *10*(4), 1–15. <https://doi.org/10.3390/su10041044>
- Zhu, Qinghua, Feng, Y., & Choi, S. B. (2017). The role of customer relational governance in environmental and economic performance improvement through green supply chain management. *Journal of Cleaner Production*, *155*, 46–53. <https://doi.org/10.1016/j.jclepro.2016.02.124>
- Zhu, Qinghua, Geng, Y., Fujita, T., & Hashimoto, S. (2010). Green supply chain management in leading manufacturers. *Management Research Review*, *33*(4), 380–392. <https://doi.org/10.1108/01409171011030471>
- Zhu, Qinghua, Sarkis, J., & Lai, K. (2007). Green supply chain management: pressures, practices and performance within the Chinese automobile industry. *Journal of Cleaner Production*, *15*, 1041–1052. <https://doi.org/10.1016/j.jclepro.2006.05.021>
- Zhu, Qinghua, Sarkis, J., & Lai, K. (2008). Green supply chain management implications for “closing the loop.” *Transportation Research Part E*, *44*, 1–18. <https://doi.org/10.1016/j.tre.2006.06.003>
- Zhu, Qinghua, Sarkis, J., & Lai, K. (2013). Institutional-based antecedents and performance outcomes of internal and external green supply chain management practices. *Journal of Purchasing and Supply Management*, *19*(2), 106–117. <https://doi.org/10.1016/j.pursup.2012.12.001>
- Zhu, Qingyun, & Sarkis, J. (2016). Green marketing and consumerism as social change in China: Analyzing the literature. *International Journal of Production Economics*, *181*, 289–302. <https://doi.org/10.1016/j.ijpe.2016.06.006>
- Zink, T., & Geyer, R. (2016). There is no such thing as a Green Product. *Stanford Social Innovation Review*, *Spring*, 26–31.

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