

Article

The Mexican Ecological Conscience: A Predictive Model

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Abstract: Recently, the number of Mexicans who buy sustainable products has been increasing, which has led to sustainable trade. Therefore, the objective of this study is to determine which variables have a greater effect on Mexicans' intention to buy green products, their ecological awareness, or moral obligation, and, in turn, to determine the degree to which moral obligation is affected by ecological awareness. A sample of 690 Mexicans was obtained, and a PLS-SEM model was applied for data analysis. The results confirmed that both a moral obligation and ecological awareness explain the intention to purchase green products, with ecological awareness contributing the most to the intention. Furthermore, the findings showed that moral obligation is affected by ecological awareness. The originality of the article is that it contributes to the consumer behavior literature by providing an insight for companies that manufacture sustainable products to understand and promote environmentally conscious consumer behavior. However, there are some limitations that can be addressed in future research.

Keywords: sustainability; ecological awareness; moral obligation; purchase intention



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1. Introduction

Recent consumer behavior towards eco-friendly or green products is a prominent issue for governments and companies [1]. Today, companies apply sustainable marketing strategies to gain a competitive advantage by creating ecological awareness among consumers [2], focusing on economic, social, and environmental values to achieve a balance between people, profit, and planet [2]. The Brundtland report describes sustainability as the process of meeting today's needs without compromising tomorrow's resources [3]. According to [4], awareness of green consumption is necessary regarding concern for the health of the planet. Indeed, the Earth is considered a system that connects space and time, so it is important to promote and support sustainable development in Mexico so that the rest of the world can follow [5].

Many studies describe a person's motivation through extrinsic means, i.e., perceived behavioral control, subjective norms, and attitude, and subsequently study their effect on green purchasing behavior [4,5]. However, a consumer may be willing to buy green products due to their interest in environmental care (intrinsic motivation), because they realize how important it is to consume green products (identified motivation), because they feel uncomfortable not buying them (introjected motivation), or because their partner wants them to buy green products (external motivation) [6,7].

According to Vargas-Hernández and Cervantes-Guzmán (2019) [8], “eco-conscious” consumers are a fast-growing niche in Mexico; moreover, there is also some research on green products in Mexican academia, such as the TNS Research Green Study (2010) [9], which notes that almost 50% of Mexicans are more willing to buy green products, so further research on Mexican consumers and their sustainability intentions is needed. In a previous study, the variables considered predictors of intention—attitudes, subjective norms, and perceived purchase control—which, according to Ajzen (2011) [10], did not have a significant effect on intention; however, environmental awareness was an additional variable in ongoing behavioral studies [11,12], while moral obligations have been shown to be the opposite [13]. Therefore, the study aims to find out the extent to which environmental awareness and moral obligation influence the purchase decision of Mexican consumers to buy green products, and whether environmental awareness influences consumers’ moral obligation. The study contributes in two ways: firstly, by contributing to the literature on Mexican consumer behavior in the sustainable context, and, secondly, by providing an overview for companies that manufacture sustainable products on consumer behavior for them to understand and promote such environmentally conscious behavior in their sales strategies.

2. Background

2.1. Mexican Consumers and Their Purchase Intention

Over the last decade, several studies have been conducted to understand how consumers react when given the opportunity to purchase green or sustainable products, and what aspects consumers consider important for purchasing these products [3]. Consumer behavior is seen as an activity that enables consumers to purchase, consume, and acquire products and services, including the decision-making stages before and after a purchase [14]. The above reflects the interesting analysis presented by the World Bank concerning consumer price inflation (annual %) in Mexico [15]. Inflation is a phenomenon observed in the economy of a country related to the disorderly increase in the prices of most of the products in a market that can be fixed or variable at given intervals, e.g., annually (See Figure 1). The Laspeyres formula is generally used.

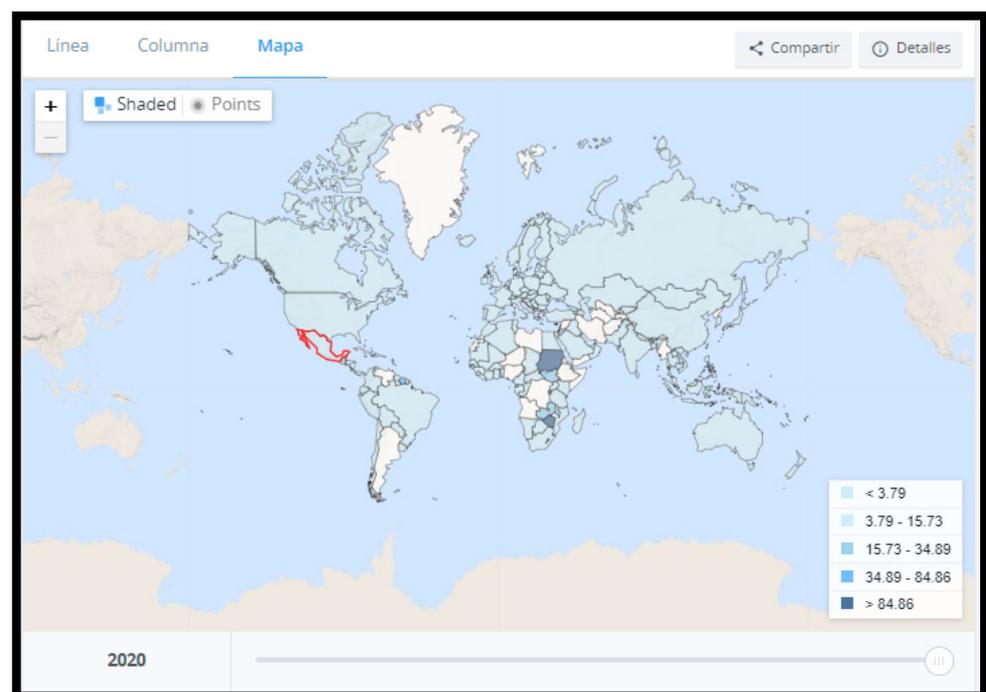


Figure 1. Inflation, consumer prices (annual %) in Mexico. Source: World Bank data 2022.

Green consumer behavior refers to the purchase of environmentally friendly products, the conservation of natural resources, and the shift towards recycled products [7]. According to Ghose and Chandra (2020), a green product is beneficial for human beings, and does not harm the environment; furthermore, it can be perceived when some of these are made of recyclable materials or if their packaging is made of biodegradable materials. For example, LUSH cosmetics replaced standard wrapping paper with reusable fabric wrapping, and when they ship some products that are sold online, they send them in biodegradable bags cushioned by compostable renatured peanuts, packaged in 100% recyclable cardboard boxes [8]. On the other hand, an example of products that do not harm the environment is energy efficient appliances (EEAs) since they promote energy efficiency to cut total greenhouse gas emissions globally [9]. For example, LG India launched an LED E60 and E90 series of monitors that consume 40% less energy than conventional LED monitors [10]. At the same time, in the fashion industry, clothing made of cotton, linen, silk, or wool can be recycled into fibers or resold, donated, repaired, adapted, or redesigned [11]. For example, the company “Indi-green” in India use 100% eco-friendly cotton, bamboo material, and hand-woven khadi in their products [12–15]. Furthermore, the purchase intention for these products indicates the extent to which consumers are willing or prepared to buy environmentally friendly products, or at least adopt greener practices [16]. Additionally, in the construction, textile, gardening, landscape architecture, and energy sectors, bamboo is used to replace conventional materials, since it has a positive environmental impact, as well as economic benefits, playing a key role in economic development from environmental protection as a key green material.

In this sense, refs. [17] mentioned that purchase intention for environmentally friendly products is considered as the desire to buy environmentally friendly products, rather than conventional products. Furthermore, ref. [18] pointed out that intention is the most important predictor of human behaviour, and that humans are rational in their systematic use of available information.

Furthermore, purchase intention for these products indicates the extent to which consumers are willing or prepared to buy environmentally friendly products or, at least, to adopt greener choice practices [16]. Therefore for, refs. [17–19] mention that purchase intention for green products is considered as the desire to buy green products, rather than conventional products. Furthermore, refs. [20–22] point out that intention is the most important predictor of human behaviour and that humans are rational in their systematic use of available information.

2.2. Moral Obligation

According to Fu et al. (2019) [23], moral obligation refers to a person’s sense of pride or guilt in performing a particular action. Furthermore, moral obligation is an important variable for measuring intention, especially in terms of environmental protection and green consumption behavior [24]. For example, consumers may feel that they should use products and services in a sustainable way because they may feel guilty if they do not [25]. However, Schwartz (1977) [26] was one of the first to propose the concept of personal duty, defining it as a moral feeling that manifests itself to enforce some form of pro-social acceptance. Schwartz (1977) [25] emphasized its effect on an individual’s tendency to help others. Generally, ethical or green consumers tend to be conscientious, and tend to buy green products to contribute to caring for the environment [24]. Similarly, Chen (2016) [27] described moral obligation as an important variable in understanding a person who has the intention to take care of the environment and consume green products. Similarly, Bergquist (2020) [28] mentions that people have a positive moral self but, to maintain it, they face social and ethical dilemmas, which motivate them to take pro-social actions when their moral self is threatened. Generally, ethical or green consumers are looking to buy green products or other products that do not cause much harm to the environment or society [24]. Furthermore, ref. [24] mentions that previous studies have found that moral obligation can greatly enhance the explanatory or predictive power of consumer intentions. This was

demonstrated in a study conducted by Si et al. (2020) [25] in China, where moral obligation was one of the most important elements that increase intention.

However, Chan and Bishop (2013) [29] highlighted that morality is of paramount importance in the study of consumer behavior, as the lack of mitigation response is believed to be the result of not perceiving climate change as a moral issue, thereby failing to stimulate an effective response that would otherwise motivate more people to act. Therefore, the following hypothesis is developed:

H1. *Moral obligation positively affects purchase intention for green products.*

2.3. Environmental Awareness

Landry et al. (2018) [30] stated that environmental concerns are widespread, but many are reluctant to take environmental action. Other studies have found a correlation between environmental awareness and green purchasing behavior, which increases consumers' willingness to spend [31]. Environmental awareness lies in understanding that environmental problems exist, and that these problems can significantly influence individual behavior to be more environmentally friendly [32]. According to Taufique and Vaithianathan (2018) [33], the environmental impact of products and services purchased by environmentally conscious consumers is positive (or negative). Similarly, Han et al. (2017) [34] demonstrated that environmental awareness indirectly affects behavioral intention through three fundamental variables: attitudes, subjective norms, and perceived purchase perception. Similarly, Paul et al., (2016) [35] mentioned that when consumers know about the environmental and health benefits of consuming green products, they exhibit higher purchase intentions. Furthermore, Saleki et al., (2019) [36] showed that environmental awareness impacts purchase intention for organic products.

Finally, Paul et al., (2016) [35] reveal that there are more and more studies related to the effect of consumers' environmental awareness concerning various issues and, above all, the direct and indirect effect of environmental awareness on other variables considered predictors of intention (See Figure 2). Therefore, the following hypotheses are formulated:

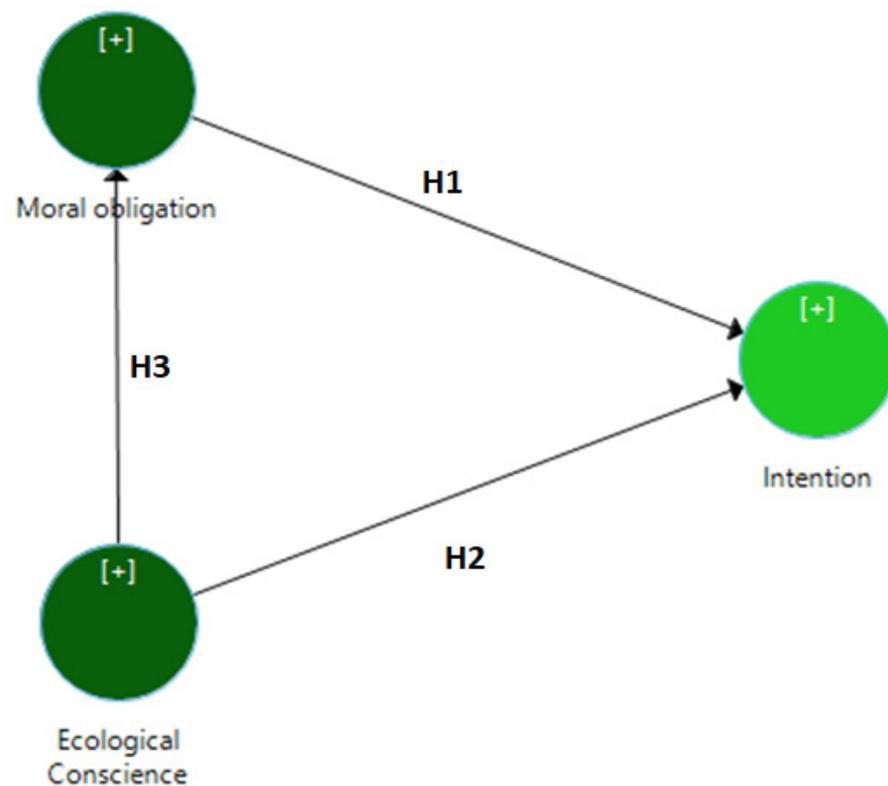


Figure 2. Conceptual model. Source: Own elaboration.

H2. *Environmental awareness positively affects purchase intention for green products.*

H3. *Ecological awareness is positively related to the moral obligation in the intention to purchase green products.*

3. Materials and Methods

Data were collected online, since it allowed for replicability and strengthened the statistical power [37,38]. Data collection was carried out between 4 January 2021 and 2 February 2021. All measurement items were adopted from related studies, which were previously validated.

In the first part of the questionnaire, the items of ecological awareness, moral obligation, and purchase intention were taken, where a six-point Likert scale was implemented, where 1 = “Strongly disagree” and 6 = “Strongly agree”. Regarding the ecological awareness variable, it was based on items used by [12,33,35,39]; in the moral obligation variable, items used by Diddi y Niehm (2017) [40], Wang et al., (2016) [41], and Yadav y Pathak (2016) [42] were used; for the purchase intention variable, the statements used by Paul et al., (2016) and Nystrand and Olsen (2020) [35–43], and Huang and Ge (2019) [44] formed a basis (see Table in appendix). Finally, some demographic data, such as age, educational level, and gender, were requested. Non-probability sampling was employed, applying the convenience technique [45]. Convenience sampling has several advantages in terms of variables of access, territory, time, and participation [21,46–48]. The sample involved 690 consumers, mostly residing in the states of Tamaulipas, Nuevo León, and Coahuila.

The objective of the study was to predict which variables most influence purchase intention for green products in Mexico, and to determine the degree to which moral obligation is affected by ecological awareness (see Figure 3). Therefore, it was decided to use partial least squares–structural equation modeling (PLS–SEM) for the analysis [49,50].

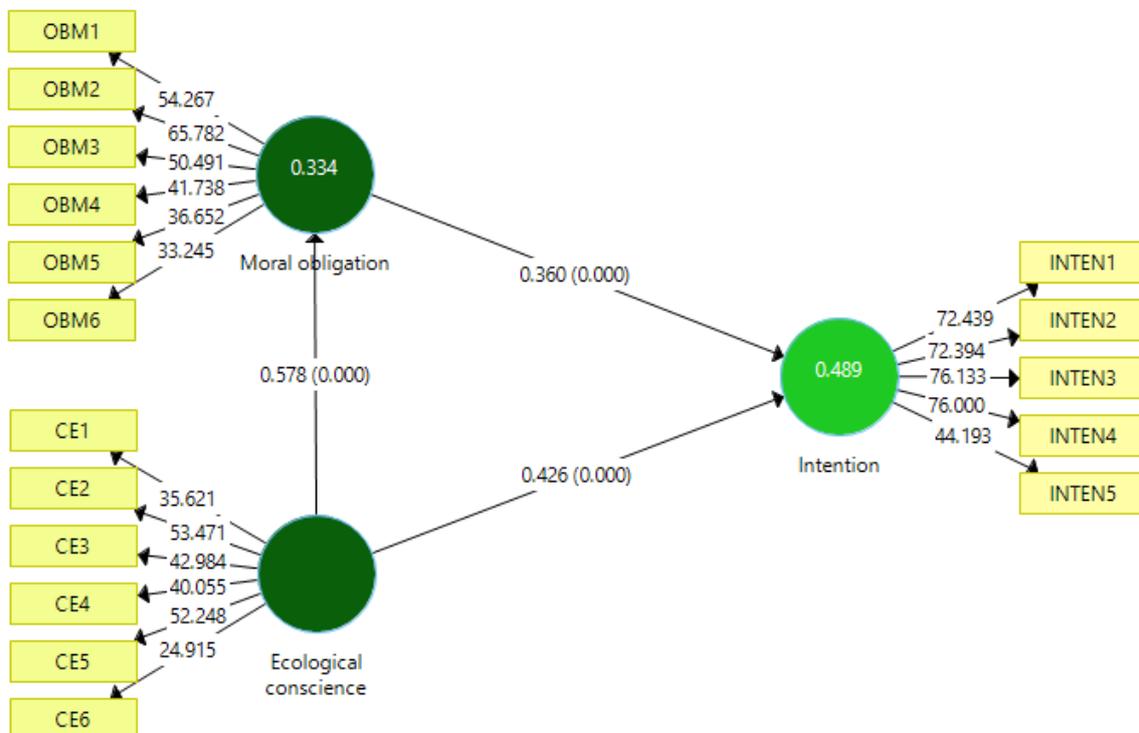


Figure 3. Results of the structural model. Source: Own elaboration in SmartPLS3.

First, the reliability of the constructs (internal and composite) was measured, as well as the structural model [50]. Subsequently, the predictive power of the model was analyzed: in the adjusted R², values of 0.25, 0.50, and 0.75 are considered weak, moderate, and significant, respectively, according to Hair Jr. et al., (2019) [50]; this is similar to the effect

size of f^2 [51] Finally, the predictive relevance was examined using the Q2 indicator and the q^2 effect of each construct [50].

4. Results

In the respondent group ($n = 690$), 59.6% were female and 40.1% were male. A total of 31.4% were aged 18–21, 12.9% were aged 22–25, 8.3% were aged 26–29, 7.7% were aged 30–33, 14.2% were aged 34–41, 11.3% were aged 42–49 and over 60 (1.9%), and 14.2% were over 50. In addition, 69.6% had a bachelor's degree, 28.6% had a postgraduate degree, and 1.9% had a high school education. In terms of occupation, 49.4% were students, 34.2% were employed in public or private companies, 8.3% were entrepreneurs, 4.6% were homemakers, and 3.5% were unemployed. Finally, 84.9% were from the state of Tamaulipas, 11.45% from the state of Nuevo León, and 3.52% from the state of Coahuila (see Table 1).

Table 1. Demographics of participants.

Characteristics	Frequency	Percentage (%)
Age (years)		
18 to 21	206	65.4
22 to 25	49	15.6
26 to 29	14	4.4
30 to 33	7	2.2
34 to 37	6	1.9
38 to 41	5	1.6
42 to 45	9	2.9
46 to 49	13	4.1
Over the 50 s	6	1.9
Sex		
Female	411	58.1
Male	277	41.9
Educational level		
Secondary	2	0.6
High school	1	0.3
Bachelor's degree/ Engineering	285	90.5
Postgraduate	27	8.6
Occupation	267	84.8
Student	22	7.0
Employee of a public/private company		
Self-employed	19	6.0
Homemaker	5	1.6
Unemployed	2	0.6
State of residence		
Tamaulipas	586	84.9%
Coahuila	25	3.52%
Nuevo Leon	79	11.45%

Source: Own elaboration.

4.1. Analysis of Results, Validation of Constructs

Internal data reliability and composite reliability analyses were conducted, which confirmed the robustness of the data. The composite reliability values are between the ranges of 0.912 and 0.953, which exceed the recommended threshold of 0.70 [52,53]. Similarly, Cronbach's alpha and convergent validity values agree with the values recommended by Hair Jr. et al., (2019) [50] (see Table 2). Finally, discriminant validity (HTMT) was determined, and the results indicated good discriminant validity (See Table 2) [54].

Table 2. Convergent and discriminant validity of constructs.

Variable	Convergent Validity				Discriminant Validity (HTMT Criterion)		
	Loads	AVE	FC	Alpha	CE	INTEN	OBM
CE1	0.759	0.637	0.913	0.886	CE	-	
CE2	0.808						
CE3	0.818						
CE4	0.804						
CE5	0.842						
CE6	0.753						
INTEN1	0.895	0.633	0.912	0.885	OBM	0.640	0.651
INTEN2	0.899						
INTEN3	0.913						
INTEN4	0.909						
INTEN5	0.860						
OBM1	0.806	0.633	0.912	0.885	OBM	0.640	0.651
OBM2	0.850						
OBM3	0.816						
OBM4	0.774						
OBM5	0.779						
OBM6	0.746						

Source: Own elaboration based on data analysis in SMART PLS3.

4.2. Validity of the Structural Model

Figure 3 shows the results of the structural model, where the relationship between the constructs was determined and the path coefficients. In the hypothesis testing results, environmental awareness is the variable that most influences the intention to purchase green products (0.426), compared to moral obligation (0.360). Furthermore, all hypotheses were significant at a p -value < 0.05 (see Table 3).

Table 3. Hypothesis test results.

Hypothesis	Coefficient Path	p -Value	f^2	Accepted/Not Accepted
H1 CE → ICPV	0.426	0.000	0.270	Accepted
H2 CE → OBM	0.578	0.000	0.334	Accepted
H3 OBM → ICPV	0.360	0.000	0.218	Accepted

Source: Own elaboration in SmartPLS3.

Regarding the predictive power of ecological awareness and moral obligation, the results show that it is moderate (R^2 of 0.489), and the effect size of the construct of ecological awareness and moral obligation is moderate (f^2 of 0.270 and 0.218, respectively). In addition, the predictive relevance is greater than zero ($Q^2 = 0.386$). Furthermore, concerning the predictive power of ecological awareness on moral obligation, the results show that it is weak (R^2 of 0.334); similarly, the model presents a predictive relevance, since the Q^2 is greater than zero (0.206). Therefore, it is confirmed that ecological awareness influences moral obligation; however, this influence is weak.

5. Discussion

As previously mentioned, this study aimed to explore the extent to which environmental awareness and moral obligation positively affect Mexicans' intention to purchase green products, and whether environmental awareness influences consumers' moral obligation. The results revealed that environmental awareness and moral obligation affect the intention to purchase green products positively and directly; therefore, hypotheses 1 and 2 are accepted. However, ecological awareness has the most significant influence on intention, which means that if people are more oriented toward preservation and concern

for the environment, they will be more likely to engage in activities that encourage such actions [55], reflecting their commitment to the environment [12].

In addition, environmental awareness guides consumers to perform environmentally beneficial behaviors, reflecting loyalty and a strong sense of commitment to sustainability [56]. Regarding hypothesis 3, the results show that moral obligation positively affects the intention to purchase green products; therefore, this hypothesis is accepted, which is consistent with the results presented by Spielmann (2020) [57–59], where he mentions that 70% of consumers feel it is their moral responsibility to engage in greener behaviors. Similarly, Bergquist (2020) [28] comments on moral–ethical behavior.

Furthermore, the results show that the relationship between environmental awareness and moral obligation is positive and significant, which confirms the view of Paul et al., (2016) [35], who reported the effect of environmental awareness on other important predictors of intention. This means that Mexican consumers must first take responsibility for environmental problems before they feel obliged to buy green products [60–62]. In terms of theoretical implications, the proposed model helps to confirm the role of the studied variables in understanding and comprehending green purchase intentions. The proposed model helped to explain 52% of the variance in organic purchase intention ($R^2 = 0.489$), thereby providing a basis for future research. Furthermore, the present study provides empirical foundations that companies can use when displaying advertising messages regarding how the consumption of green products by environmentally concerned consumers can potentially reduce environmental problems. In other words, both governments and non-profit organizations should raise awareness of the benefits of recycling or buying green products for the conservation of natural resources through green campaigns. In addition, in order to increase moral obligation, consumers should be told that their green actions can reduce energy waste, water waste, product reuse, recycling, etc., to improve their understanding of environmental value. Finally, companies should improve the quality of the green products that they manufacture so that consumers will consider switching from a conventional product to a sustainable one, and, at the same time, feel that they are contributing to the conservation of the planet.

6. Conclusions

As part of resilience practices following COVID-19, companies have had to look for new alternatives to offer good products to the customers and friendly to the environment at the same time. This is why this study provides an overview of the new green consumer behavior, as well as offering insight for companies that manufacture sustainable products to understand and promote environmentally-conscious consumer behavior. Companies are interested in making their products and services more sustainable. In this sense, the results can help stakeholders to create new business strategies based on the studied variables. However, there are some theoretical implications in the field of business and company adoption related to environmental awareness.

First, a theoretical and conceptual framework was developed regarding the individuals' intention to adopt the use of good practices contributing to the well-being of the surrounding world in their daily activities based on the existing literature on behavioral intention theory. Secondly, this study provides the basis for further research in emerging countries that are facing environmental problems in order to change the way in which customers buy products, presented as a new opportunity to predict their purchase intentions.

Limitations and Future Research

One of the limitations of this study is that it was conducted with a focus on green products in general. As such, future research can test the model on other product categories such as organic foods, visiting green hotels where they use products and services that minimize water and energy consumption, and recyclable products. Another limitation is the measurement of the relationship between environmental awareness and moral obligation, which could be extended by applying it to other variables, such as environmental attitude,

willingness to pay, brand perception, green packaging, or customer value. Therefore, a qualitative study could help to identify the variables that could be most relevant for the consumer of green products. In addition, the study focused on predicting purchase intention. As such, future research could consider actual purchase behavior. Finally, it is important to be cautious in generalizing the results, as the sample was collected mainly in the northeast of Mexico. Future studies could apply this method equally to the rest of the country, and make a cross-country comparison.

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