

## Article

# Predictive Sustainability Model Based on the Theory of Planned Behavior Incorporating Ecological Conscience and Moral Obligation

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**Abstract:** Recent studies have highlighted the importance of research on consumers' green behavior in emerging markets. This study aims to determine the variables of the theory of planned behavior (TPB) that influence green purchasing intentions in Mexico. Into the model, we incorporated ecological conscience, moral obligation, and willingness to pay as additional variables. A sample of 300 consumers was obtained through an online survey and data were analyzed statistically using partial least squares structural equation modeling (PLS-SEM). The results revealed that perceived purchase control, ecological conscience, and moral obligation directly influence purchase intention. The study contributes to the current literature by strengthening the existing knowledge about the factors that influence the purchasing behavior of green products in emerging countries.

**Keywords:** theory of planned behavior; willingness to pay; ecological conscience; moral obligation



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## 1. Introduction

According to Choshaly and Mirabolghasemi [1], when a consumer chooses a product, it has a direct or indirect effect on the environment. However, the care of the environment by society is considered a matter of ethics. For example, some cultures are very focused on the care of natural elements, natural resources, and the environment. Therefore, researchers are interested in studies related to the purchase intention of green products in emerging markets [1,2]. There is growth in the global economy and the number of green consumers seeking to prevent environmental deterioration. Hence, companies are making investments, promoting ideas, and planning new strategies to position their green brands among their current customers and achieve environmental sustainability. Due to this, people with high concern for the environment are more likely to buy green products and this phenomenon is referred to as the green consumption trend [3,4].

Regarding the purchase intention of green products, there are a variety of studies where the impact of attitudes, environmental knowledge, past behavior, social influence, social responsibility, and trust on purchase intention is analyzed [5–7]. According to Lestari et al. [3], two theories that explain consumer behavior are the theory of reasoned action (TRA) [8] and the theory of planned behavior (TPB) [9]. The theory of reasoned action predicts any behavioral intention and the theory of planned behavior explains both behavioral intention and actual behavior [3,10].

Furthermore, such theories support the argument that consumer intention can be defined as the willingness of consumers to buy green products and their intrinsic motivation [11,12]. With this background, the objective of the present study is to determine which variables of the TPB, and variables focused on environmental care, ecological conscience, and moral obligation [13–15], exert greater influence on the intention to purchase green products, along with the price variable. The study contributes to the current literature by strengthening the existing knowledge on the factors influencing green product purchase behavior in emerging countries. In addition, we test the expanded version of the theory of planned behavior, with the inclusion of moral obligation [14,16] and ecological conscience [17], to understand the consumers' green purchase behavior in the Mexican context.

## 2. Theoretical Model and Hypothesis Development

### 2.1. Green Products

Currently, the concern for the care of natural resources with regard to human activities has highlighted the problems of protecting the environment. As a consequence, the demand for green products has increased [18,19]. In previous studies, the words green products, sustainable, eco-friendly, and environmentally friendly have been used as synonyms to attract consumers to green marketing. Similarly, green products are considered to be less toxic and more durable because they are produced from recycled materials through more environmentally friendly processes [18,20]. Furthermore, it has been shown that consumers who prefer to buy environmentally friendly products are more concerned about the damage done to the environment, as compared to those who buy non-environmentally friendly products [21].

However, Kinoti [22] considered that green products cannot be defined only with phrases such as “reduce, reuse, or recycle”. Similarly, Pickett-Baker and Ozaki [23] showed that the definition of a green product is complex. No product is completely green or sustainable and they have a harmful environmental impact at some point in their life cycles. However, they can be classified according to the level of these impacts. In other words, the lower the negative impact of a product on the environment, the more environmentally sustainable it is [23,24].

For example, in Indonesia, people who buy green products have the belief that such products reduce environmental degradation as they contain no or less environmentally harmful materials, are energy efficient in their production and consumption process, and do not pollute the air, water, and soil. Likewise, these products are commonly found in daily life—organic food, energy-efficient lamps, energy-efficient vehicles [3,25].

### 2.2. Purchase Intention According to The Theory of Planned Behavior

Purchase intention is defined as the probability of consumer plans or the consumer's willingness to purchase a product or service in the future [26]. Similarly, Becerra and Badrinarayanan [27] express that it is more of a consumer's inclination to purchase products from a specific category. Rashid [28] expressed the intention to purchase green products as a person's willingness to purchase green products instead of conventional products that are harmful to the environment.

The theory of planned behavior [13] has been used to consider certain critical variables within the green marketing literature, which take into account predictors of intention: attitude towards behavior, subjective norms, and perceived behavioral control [29]. Likewise, Giampietri et al. [30] mention that these variables contribute specifically to understanding human behavior. In the context of purchase intention for green products, variables like ecological conscience [31–33] and moral obligation [14,32,33] have been recently added to the model proposed by Ajzen [9].

### 2.3. Attitudes

The attitudes toward behavior refer to the degree that a person has a favorable or unfavorable evaluation toward a specific behavior developed from beliefs about some

object or in certain behaviors [13,34]. According to Lestari et al. [3], an attitude is a psychological tendency expressed by evaluating a particular entity with some degree of favor or dislike.

Furthermore, attitudes can be positive or negative and, in the case of consumer behavior, attitudes create positive or negative expectations of a particular outcome [35]. For example, it is known that consumers with a more positive attitude towards such products prefer to consume environmentally friendly products and vice versa. As a consequence, it makes them more careful when selecting their products [3,36].

Previous studies show that there is a positive link between attitude and purchase intention [3,31,37–39]. Attitude has been considered as the central predictor of purchase intention. Therefore, environmental attitudes can predict green purchase behavior being, at the same time, the step before environmental protection behavior [21]. In other words, a consumer with a positive attitude toward green products will have a strong intention toward purchasing green products [40]. Having said the above, the following hypothesis is proposed:

**Hypothesis 1 (H1).** *Attitudes positively and directly impact purchase intention for green products.*

#### 2.4. Subjective Norms

According to Li et al. [41], subjective norms are an important factor in social science studies because of their strong influence on individual behavior. Likewise, Ostrom [42] mentions that subjective norms are the acceptable behavior within general groups of a certain community. Therefore, subjective norms are an important determinant of perceived intention in social pressure to perform or not perform certain behavior [43,44].

Regarding purchase intention for green products, Wansink et al. [29] showed that social influence affected purchase behavior for environmentally friendly products when mentioning the existence of influence groups such as the activist group Friends of the Earth International and Greenpeace. Additionally, social influence exerts a strong influence on individual behavior [45], as such behavior is considered acceptable to the public [46,47]. According to Bamberg and Möser [48], moral or personal norms are determinants of prosocial behavior, which are perceived as feelings of strong moral obligation that people experience for themselves to engage in prosocial behavior.

On the other hand, in the context of marketing and consumer behavior, many studies have documented subjective norms as an important determinant of intention. Han et al. [49] exposed that subjective norms positively affect behavioral intentions in various pro-environmental contexts like consumption of green products and services, recycling and waste separation, energy and water saving, and use of public transportation. Similarly, Nguyen et al. [50] highlighted that young consumers tend to consider the opinions and expectations of those who are considered important to them, such as friends, parents, and teachers when a pro-environmental behavioral intention is presented. Having stated the above, the following hypothesis is developed:

**Hypothesis 2 (H2).** *Subjective norms positively and directly impact purchase intention for green products.*

#### 2.5. Perceived Behavioral Control

Perceived behavioral control refers to the ease or difficulty that an individual experiences when intending to perform a certain behavior, highlighting past experiences [51] and possible future obstacles. However, this depends on the ability of individuals to control the external and internal elements present [52]. This perception of behavioral control directly affects the intentions to perform a specific behavior because it is composed of two factors: (1) the control beliefs that are related to the sense of self-availability of skills, resources, and opportunities and (2) the ease of doing what is described above [53,54].

According to Yang-Wallentin et al. [55], an individual's willingness intention to perform a certain behavior is indicated by the control to execute it. Therefore, the interaction between intention and perceived behavioral control can be seen in psychological and non-psychological ways. It is psychological when believing that a person will increase their intention to perform a given behavior when his or her perceived behavioral control is higher. Conversely, when it is non-psychological, an individual with an intention will fail to perform the behavior if his or her actual behavioral controls are lower [55,56].

Previous empirical studies have confirmed the relationship between perceived behavioral control and intention. For example, Simsekoglu and Nayum [57] confirmed that the strongest predictor of intention to purchase electric battery vehicles among drivers of conventional vehicles in Norway was perceived behavioral control.

For their part, Paul et al. [31] identified the perceived behavioral control variable as a good predictor of intentions to purchase green products in Indian consumers. They proposed to reduce the perceived difficulty of sellers by communicating the availability, modes of purchase, and the variety of green products offered in the market. Furthermore, Carfora et al. [58] conducted a study to predict the purchase intention of environmentally friendly products considering the theory of planned behavior model by controlling for past purchases. They found that perceived behavioral control plays a decisive role in driving pro-environmental intentions and such behaviors were strongly based on the perceived behavioral control variable compared to the other predictors in the model. Given the above, the following hypothesis emerges:

**Hypothesis 3 (H3).** *Perceived purchase control positively and directly impacts purchase intention for green products.*

#### 2.6. Ecological Conscience

Ecological conscience refers to people's orientation toward environmental preservation and their concern toward environmental conservation, causing them to intend to take actions that encourage such actions [59]. According to Pickett-Baker and Ozaki [23], people concerned about the environment have a favorable purchasing behavior towards green products. However, conscience towards green brand products and intention to purchase them are influenced by the belief and desire to protect the environment while reflecting commitment towards the environment [60].

Meanwhile, Sajjad et al. [61] investigated the switching intentions towards electric vehicles in the context of climate issues posed by air pollution in China. They indicated that there is a direct and significant influence between environmental awareness and green purchase intention. They found that people with a higher environmental conscience are the ones who seek more information about available solutions or alternatives to restore their outdoor activities. Likewise, Mataracı and Kurtuluş [62] determined that the ecological conscience of Istanbul citizens of different socioeconomic levels has a significant and direct impact on the purchase intention of sustainable products. Similarly, Panda et al. [63] emphasize that marketers need to understand how increasing levels of green conscience impact other factors that explain customers' environmental behavior. Furthermore, in their study, they indicate that green conscience positively influences consumer altruism, leading to an increase in purchase intention and green brand loyalty. Taking into account the above considerations, the following hypothesis emerges:

**Hypothesis 4 (H4).** *Ecological conscience positively and directly impacts purchase intention for green products.*

#### 2.7. Moral Obligation

Perceived moral obligation occurs when a person participates in a specific act, feeling proud or guilty [64]. For his part, Schwartz [65] firstly introduced the concept of personal obligation by defining it as an individual feeling of moral obligation to perform certain

forms of prosocial behavior, enhancing its impact on an individual's predisposition to help another individual. However, Ajzen [9] considered moral obligation as the obligation to perform or to refuse to perform a certain behavior. In the same sense, Shaw et al. [66] pointed out that those consumers who are ethical and show a moral obligation by taking care of the environment or some community are sensitive to ecological issues. According to Spielmann [32], 70% of consumers feel it is their responsibility to be engaged in greener behaviors since by engaging with eco-friendly products, they effectively participate in more moral acts. For example, making donations provoking positive feelings that, in turn, increase consumer satisfaction and purchases of brands linked to prosocial causes.

Additionally, one of the aspects of green marketing is to understand how the consumer fits into the senses of social responsibility and morality, which affect their consumption patterns [67,68]. According to Mazar and Zhong [67], people tend to possess a positive moral self but maintaining it implies confronting social and ethical dilemmas, which motivate them to perform prosocial actions when their moral self is threatened. Their study has shown that the intention to purchase green products is more influenced by social and ethical behaviors. From the above, the following hypothesis emerges:

**Hypothesis 5 (H5).** *Moral obligation positively and directly impacts purchase intention for green products.*

#### 2.8. Willingness to Pay

According to Dropulić and Krupka [18], price is one of the most important elements of the marketing mix, as it affects consumers' choice behavior. The prices of organic products are usually perceived as higher compared to conventional ones, so they are often a factor for not consuming them [60]. Ravenswaay and Wohl [69] mention that several studies support the fact that people are not willing to pay a high price for organic products, as they think that even without buying such products, they can help to conserve the environment. However, when consumers are aware of environmental issues, they are less price-sensitive and are willing to pay higher prices for them [70,71]. Likewise, Naz et al. [72] highlighted that consumers are willing to pay a higher price if they are assured that their changing consumption patterns can help save the environment.

The consumption of green products has been increasing in recent years. Hence, empirical studies are showing that consumers are willing to pay extra for such products due to the additional utility they get from buying them [73]. As evidence of this, a survey conducted in the European Union on purchase intention for organic products in 2014 found that 75% of Europeans were willing to pay extra for such products compared to 72% in 2011. Conversely, in Canada, it was shown that only 56% of consumers were willing to pay more for an organic product [73]. Recently, Spielmann [32] exposed that 66% of consumers are willing to pay more for products identified as green or sustainable. Additionally, this leads to positive feelings, increasing their purchase intention. From the above, the following hypothesis is formulated:

**Hypothesis 6 (H6).** *Willingness to pay positively and directly impacts purchase intention for green products.*

### 3. Methodology

Partial least squares structural equation modeling (PLS-SEM) was used to predict the degree of influence of exogenous constructs on purchase intention for green products in Mexico [74] (see Figure 1). The model is composed of two stages: in the first stage, the reflective and formative constructs were evaluated and in the second stage, the predictive power of the structural model was evaluated.

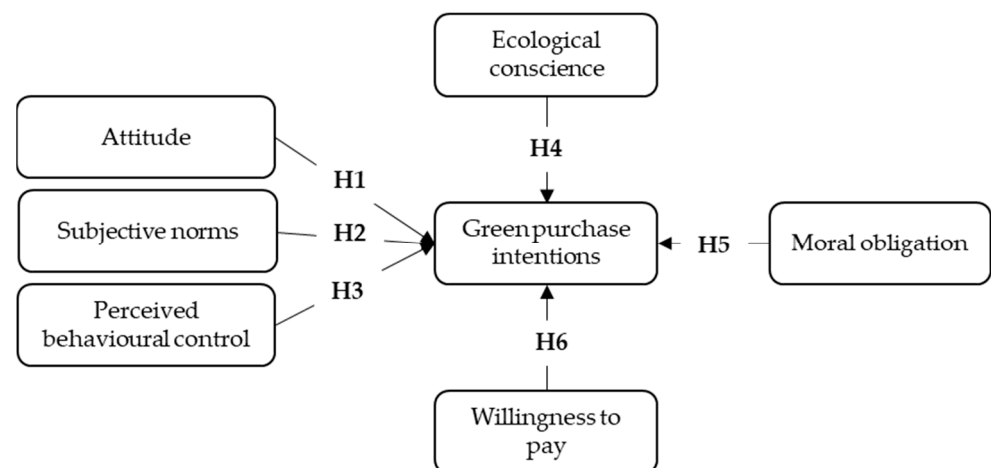


Figure 1. Conceptual model.

Data were collected online using Google Forms, the link to the survey was shared via Facebook [75,76]. Data collection was conducted between 15 December 2020 and 15 January 2021. All measurement items were adopted from related studies, which were previously validated.

In the first part of the questionnaire, predictor items of intention were measured: attitude towards the stimulus product, subjective norms, perceived level of behavioral control, moral obligation, ecological conscience, and intention to purchase green products, where a six-point Likert scale was implemented, where 1 = “Strongly disagree” and 6 = “Strongly agree”. As for the attitude variables, subjective norms and perceived behavioral control were based on the items used by Beldad and Hegner [16], Testa et al. [77], Wang et al. [78], and Yadav and Pathak [17]; the moral obligation variables were from Diddi and Niehm [79], Wang et al. [78], and Yadav and Pathak [17]; and, for the ecological awareness variable, the items used were from Koenig-Lewis et al. [80], Prakash and Pathak [60], Paul et al. [31], and Taufique and Vaithianathan [81].

After presenting an advertisement of the green product, which consisted of a bamboo toothbrush with a market price of MXN 70.00 and that of another product in the same category with its respective price (see the advertisement in Appendix A), participants were asked to answer a purchase intention question, “What is the likelihood that you will buy the bamboo toothbrush?” Tripathi and Pandey [82] apply a five-point Likert scale, where 1 = “Very unlikely” and 5 = “Very likely”. Finally, demographic data of the participants were requested. The type of sampling employed was non-probability, applying the convenience sampling technique [83]. Convenience sampling has been widely used in studies related to environmental care because it meets certain criteria: ease of access, geographic proximity, time availability, and willingness to participate [84–87]. The final sample was 300 consumers of legal age, mostly residing in northeastern Mexico, of both genders and who also have an interest in acquiring environmentally friendly products. In marketing studies, a sample of 300 is appropriate, so an adequate sample was obtained for the present study [88].

#### 4. Data Analysis

In the present study, of the 300 responses, 58.3% were women and 41.7% were men. Regarding occupation, 83.7% were studying a graduate degree full-time, 7.7% worked in a public or private company, 6.3% owned businesses, and 1.7% were housewives. In terms of age, 66% were between 18 and 21 years old, 14.3% between 22 and 25 years old, 4.7% between 26 and 29 years old, 4.3% between 30 and 37 years old, 4% between 38 and 41 years old, 3% between 42 and 45 years old, and 1.7% between 46 and 49 years old. Additionally, 90.7% had undergraduate degrees, 9.0% had a graduate degree, and 0.3% had a high school

education. Finally, 94.3% reside in the state of Tamaulipas, 2.0% in Nuevo León, another 2% in Mexico City, 1.0% in Querétaro, and 0.6% in Coahuila. Table 1 shows these data in detail.

**Table 1.** Demographic profile.

| Variables       |                      | Frequency | Percentage |
|-----------------|----------------------|-----------|------------|
| Gender          | Female               | 175       | 58.30%     |
|                 | Male                 | 125       | 41.70%     |
| Occupation      | Unemployed           | 251       | 83.70%     |
|                 | Employee             | 23        | 7.70%      |
|                 | Own business         | 19        | 6.30%      |
|                 | Housewife            | 7         | 2.40%      |
| Level Education | Undergraduate degree | 272       | 90.70%     |
|                 | Graduate degree      | 27        | 9%         |
|                 | High School          | 1         | 0.30%      |
| Age             | 18–21                | 198       | 66%        |
|                 | 22–25                | 43        | 14.30%     |
|                 | 26–29                | 14        | 4.70%      |
|                 | 30–33                | 6         | 2.00%      |
|                 | 34–37                | 6         | 2.00%      |
|                 | 38–41                | 5         | 1.70%      |
|                 | 42–45                | 9         | 3.00%      |
|                 | 46–49                | 13        | 4.30%      |
| Residence       | 50                   | 6         | 2.00%      |
|                 | Tamaulipas           | 283       | 94.30%     |
|                 | Nuevo León           | 6         | 2.00%      |
|                 | Coahuila             | 2         | 0.60%      |
|                 | Ciudad de Mexico     | 6         | 2.00%      |
|                 | Querétaro            | 3         | 1.00%      |

Source: Own elaboration.

#### 4.1. Results

Including ecological conscience and moral obligation as possible predictors in the theory of planned behavior model could present issues of the variance of the common method since they are constructs of behavioral research [89]. Therefore, the internal validity of the model could be affected. Following Kock's [90] recommendations, the variance inflation factors (VIFs) of all the latent variables were reviewed and it was found that the VIF of all of them was less than 3.3. Thus, the model does not present variance problems of the common method [90].

#### 4.2. Validation of the Constructs

The evaluation of the reflective measures model was carried out through reliability, convergent validity, and discriminant validity. Reliability refers to the internal consistency between the different measurement items of a construct [91]. To analyze the reliability of the indicator, the loadings should be higher than 0.7 [83,92].

Table 2 shows that items CCP1 and CCP3 do not meet the estimated loadings, so they were eliminated and the calculation of the simple PLS algorithm was performed again [74]. Table 3 shows the fit with acceptable loadings of the indicators.

In addition, three criteria were used to examine the construct reliability, Cronbach's alpha, composite reliability, and rho\_A (pa), whose estimated loadings should be greater than 0.7 [74,93]. Convergent validity reflects the extent to which all items of a construct are measured on the same construct, which can be evaluated using the average variance extracted (AVE) if it is greater than 0.5 [94]. Table 3 shows the results of the analysis.

Discriminant validity indicates to what extent a given construct is different from other constructs [95], for which heterotrait–monotrait relationship analysis (HTMT) was used, which is applied due to the criticisms that have arisen concerning the Fornell–

Larcker test [96]. Table 4 shows that there is discriminant validity, since the values obtained are less than 0.90, and are considered optimal values since they are below the estimate (less than 0.85) [96].

**Table 2.** Evaluation of the reflective measurement model.

| Variable                        | Items  | Factor Loadings<br>>0.70 | AVE<br>>0.50 | Composite<br>Reliability >0.70 | Cronbach 's<br>Alpha >0.70 | rho_A<br>>0.70 | HTMT<br><0.90 |
|---------------------------------|--------|--------------------------|--------------|--------------------------------|----------------------------|----------------|---------------|
| Attitude                        | ACT1   | 0.897                    | 0.830        | 0.967                          | 0.959                      | 0.960          | Yes           |
|                                 | ACT2   | 0.920                    |              |                                |                            |                |               |
|                                 | ACT3   | 0.928                    |              |                                |                            |                |               |
|                                 | ACT4   | 0.948                    |              |                                |                            |                |               |
|                                 | ACT5   | 0.874                    |              |                                |                            |                |               |
|                                 | ACT6   | 0.898                    |              |                                |                            |                |               |
| Perceived<br>behavioral control | CCP1   | 0.682                    | 0.581        | 0.872                          | 0.816                      | 0.846          | Yes           |
|                                 | CCP2   | 0.835                    |              |                                |                            |                |               |
|                                 | CCP3   | 0.598                    |              |                                |                            |                |               |
|                                 | CCP4   | 0.884                    |              |                                |                            |                |               |
|                                 | CCP5   | 0.779                    |              |                                |                            |                |               |
| Ecological<br>conscience        | CE1    | 0.722                    | 0.634        | 0.912                          | 0.884                      | 0.890          | Yes           |
|                                 | CE2    | 0.800                    |              |                                |                            |                |               |
|                                 | CE3    | 0.839                    |              |                                |                            |                |               |
|                                 | CE4    | 0.799                    |              |                                |                            |                |               |
|                                 | CE5    | 0.842                    |              |                                |                            |                |               |
|                                 | CE6    | 0.769                    |              |                                |                            |                |               |
| Moral obligation                | OBM1   | 0.848                    | 0.667        | 0.923                          | 0.902                      | 0.926          | Yes           |
|                                 | OBM2   | 0.880                    |              |                                |                            |                |               |
|                                 | OBM3   | 0.860                    |              |                                |                            |                |               |
|                                 | OBM4   | 0.736                    |              |                                |                            |                |               |
|                                 | OBM5   | 0.776                    |              |                                |                            |                |               |
|                                 | OBM6   | 0.789                    |              |                                |                            |                |               |
| Green purchase<br>intention     | INTEN1 | 0.892                    | 0.834        | 0.962                          | 0.950                      | 0.952          | Yes           |
|                                 | INTEN2 | 0.929                    |              |                                |                            |                |               |
|                                 | INTEN3 | 0.947                    |              |                                |                            |                |               |
|                                 | INTEN4 | 0.932                    |              |                                |                            |                |               |
|                                 | INTEN5 | 0.863                    |              |                                |                            |                |               |

Source: Own elaboration based on Smart PLS3 analysis. AVE: Average variance extracted; HTMT: Heterotrait–monotrait relationship criterion.

**Table 3.** Reflective measurement model evaluation setting.

| Variable                        | Items | Factor Loadings<br>>0.70 | AVE<br>>0.50               | Composite<br>Reliability >0.70 | Cronbach 's<br>Alpha >0.70 | rho_A<br>>0.70             | HTMT<br><0.90 |
|---------------------------------|-------|--------------------------|----------------------------|--------------------------------|----------------------------|----------------------------|---------------|
| Attitude                        | ACT1  | 0.897                    | 0.830<br>(0.794–<br>0.862) | 0.967<br>(0.959–0.974)         | 0.959<br>(0.948–0.968)     | 0.960<br>(0.945–<br>0.969) | Yes           |
|                                 | ACT2  | 0.920                    |                            |                                |                            |                            |               |
|                                 | ACT3  | 0.928                    |                            |                                |                            |                            |               |
|                                 | ACT4  | 0.948                    |                            |                                |                            |                            |               |
|                                 | ACT5  | 0.874                    |                            |                                |                            |                            |               |
|                                 | ACT6  | 0.898                    |                            |                                |                            |                            |               |
| Perceived<br>behavioral control | CCP2  | 0.845                    | 0.757<br>(0.711–<br>0.798) | 0.903<br>(0.880–0.922)         | 0.838<br>(0.795–0.873)     | 0.853<br>(0.812–<br>0.879) | Yes           |
|                                 | CCP4  | 0.927                    |                            |                                |                            |                            |               |
|                                 | CCP5  | 0.834                    |                            |                                |                            |                            |               |
|                                 | CE1   | 0.722                    |                            |                                |                            |                            |               |
|                                 | CE2   | 0.800                    |                            |                                |                            |                            |               |
| Ecological<br>conscience        | CE3   | 0.839                    | 0.634<br>(0.564–<br>0.692) | 0.912<br>(0.886–0.931)         | 0.884<br>(0.845–0.911)     | 0.890<br>(0.850–<br>0.913) | Yes           |
|                                 | CE4   | 0.799                    |                            |                                |                            |                            |               |
|                                 | CE5   | 0.842                    |                            |                                |                            |                            |               |
|                                 | CE6   | 0.769                    |                            |                                |                            |                            |               |
|                                 | OBM1  | 0.848                    |                            |                                |                            |                            |               |
|                                 | OBM2  | 0.880                    |                            |                                |                            |                            |               |
| Moral<br>obligation             | OBM3  | 0.860                    | 0.667<br>(0.624–<br>0.706) | 0.923<br>(0.908–0.935)         | 0.902<br>(0.882–0.918)     | 0.926<br>(0.907–<br>0.940) | Yes           |
|                                 | OBM4  | 0.736                    |                            |                                |                            |                            |               |
|                                 | OBM5  | 0.776                    |                            |                                |                            |                            |               |
|                                 | OBM6  | 0.789                    |                            |                                |                            |                            |               |
|                                 | INT1  | 0.892                    |                            |                                |                            |                            |               |
|                                 | INT2  | 0.929                    |                            |                                |                            |                            |               |
| Green purchase<br>intention     | INT3  | 0.947                    | 0.834<br>(0.795–<br>0.864) | 0.962<br>(0.951–0.970)         | 0.950<br>(0.935–0.961)     | 0.952<br>(0.937–<br>0.961) | Yes           |
|                                 | INT4  | 0.932                    |                            |                                |                            |                            |               |
|                                 | INT5  | 0.863                    |                            |                                |                            |                            |               |

Source: Own elaboration based on Smart PLS3 analysis.



**Table 4.** Heterotrait–monotrait relationship criterion (HTMT).

|       | ACT   | CCP   | CE    | INT   | OBM   | Price |
|-------|-------|-------|-------|-------|-------|-------|
| ACT   |       |       |       |       |       |       |
| CCP   | 0.564 |       |       |       |       |       |
| CE    | 0.489 | 0.763 |       |       |       |       |
| INT   | 0.500 | 0.689 | 0.733 |       |       |       |
| OBM   | 0.407 | 0.592 | 0.620 | 0.644 |       |       |
| Price | 0.706 | 0.550 | 0.736 | 0.540 | 0.421 |       |

Source: Own elaboration based on Smart PLS3 analysis. ACT: attitude; CCP: perceived behavioral control; CE: ecological conscience; INT: green purchase intention; OBM: moral obligation.

For the model measurement of the formative variable, multicollinearity was tested using a tolerance value > 0.2 and variance inflation factor (VIF) < 5. The results showed that all values were within acceptable limits. However, Table 5 shows that the variables NS1, NS4, and NS5 had loadings less than 0.707, but were not removed as it is a formative measure [97]. Likewise, significance analysis was performed by applying the bootstrapping algorithm with 5000 subsamples and using two-tailed Student’s *t*-distribution values, where it was found that all items have significant loadings.

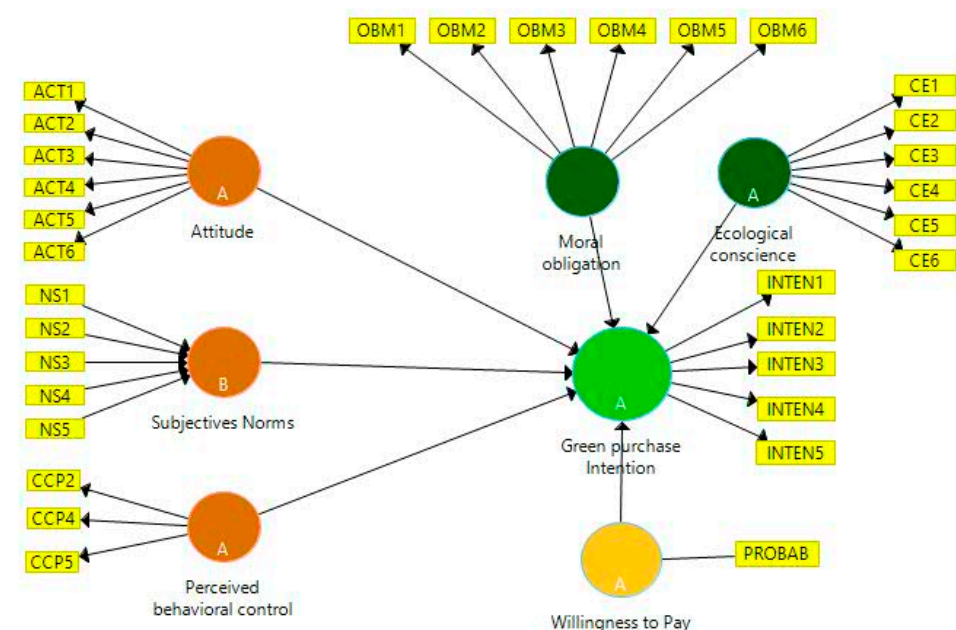
**Table 5.** Evaluation of the formative measurement model.

| Variables        | Items | Outer Weights | Outer Loadings | VIF <5.0 | Tolerance Value > 0.20 | Significant Loadings |
|------------------|-------|---------------|----------------|----------|------------------------|----------------------|
| Subjective norms | NS1   | −0.053        | 0.485          | 1.573    | 0.636                  | Yes                  |
|                  | NS2   | 0.552         | 0.856          | 1.845    | 0.542                  | Yes                  |
|                  | NS3   | 0.545         | 0.868          | 1.667    | 0.600                  | Yes                  |
|                  | NS4   | −0.145        | 0.355          | 1.415    | 0.707                  | Yes                  |
|                  | NS5   | 0.229         | 0.573          | 1.407    | 0.711                  | Yes                  |

Source: Own elaboration based on Smart PLS3 analysis.

4.3. Validity of the Structural Model

After performing the validity and reliability of the data, the next step was to determine the relationship between the constructs. Figure 2 shows the results of the structural model with the path coefficients.



**Figure 2.** Results of the structural model. Source: Own elaboration based on the results obtained through data analysis in Smart PLS3.

Table 6 presents hypothesis test results, where it was observed that the variables perceived behavioral control (0.167), ecological conscience (0.338), and moral obligation (0.278) directly and positively influence the intention to purchase green products. However, the  $p$ -value of attitude, subjective norms, and willingness to pay did not obtain the estimated value ( $p < 0.05$ ), so the hypotheses were rejected.

**Table 6.** Hypothesis test results.

| Hypotheses | Path        | Estimate | Intervals      | $p$ -Value | Results  |
|------------|-------------|----------|----------------|------------|----------|
| H1         | ACT → GPI   | 0.092    | (0.001–0.206)  | 0.069      | Rejected |
| H2         | NS → GPI    | 0.066    | (−0.050–0.156) | 0.171      | Rejected |
| H3         | CCP → GPI   | 0.167    | (0.059–0.281)  | 0.006      | Accepted |
| H4         | CE → GPI    | 0.338    | (0.230–0.450)  | 0.000      | Accepted |
| H5         | OBM → GPI   | 0.278    | (0.172–0.384)  | 0.000      | Accepted |
| H6         | Price → GPI | 0.012    | (−0.53–0.090)  | 0.394      | Rejected |

Source: Own elaboration based on Smart PLS3 analysis.

The predictive power of the variables perceived behavioral control, ecological conscience, and moral obligation on the intention to purchase green products was moderate (adjusted  $R^2$  of 0.568) and the construct size effects of perceived behavioral control, ecological conscience, and moral obligation were small ( $f^2$  of 0.031, 0.130, and 0.111, respectively). On the other hand, the model presented a predictive relevance, since the  $Q^2$  was greater than zero (0.432). Therefore, it was confirmed that perceived purchase control, ecological conscience, and moral obligation affect the intention to purchase green products in Mexicans.

## 5. Discussion

The present work was conducted to determine which variables of the theory of planned behavior (TPB) most influence green purchasing intention in Mexico. We incorporated ecological conscience and moral obligation into the model. The results from the measurement model and structural model show that the predictor variables of Mexicans' intention to purchase green products were perceived behavioral control, ecological conscience, and moral obligation. As for hypothesis 1, the attitude variable did not have a positive or direct influence on intention, so this hypothesis was rejected. The result agrees with the results of Xu et al. [15], as their results showed that the attitude of Chinese consumers is not significantly related to sustainable purchase intention, implying a gap between attitude and ecological behavior. National companies should improve their communication campaigns that enable favorable attitudinal changes towards green products, focusing on how eco-friendly products, as well as pro-environmental consumption behavior, which can help limit environmental harm. Concerning hypothesis 2, the subjective norm variable was found to be a non-significant predictor of purchase intention, as Paul et al. [31] did. Likewise, it has been considered as one of the weakest variables in the intention models proposed in previous research where the theory of planned behavior was applied in green marketing issues [31,98]. This implies that Mexican consumers do not consider the opinion of others (family, friends, co-workers, etc.) when buying sustainable products. As Taufique and Vaithianathan [81] recognized, marketers may use positive testimonials of actual consumers, social influencers, or well-known artists who help protect the environment by shopping for green products.

On the contrary, hypotheses 3, 4, and 5 were accepted. The relationship of the perceived behavioral control variable (H3) and green purchase intention was positive and direct. Paul et al. [31] also identified that the perceived behavioral control variable was a good predictor of intentions to buy green products in Indian consumers. Similarly, Simsekoglu and Nayum [57] confirmed that the strongest predictor of purchase intention for sustainable products in Norway was perceived behavioral control. Regarding ecological conscience (H4), Mexicans showed greater intention to purchase green products, as

Kumar et al. [99] found in sustainable behavior in young people in India, who showed greater concern compared to young people in the United Kingdom, United States, Brazil, Russia, and many others. Likewise, the variable moral obligation (H5) had a positive and direct impact on the intention to purchase green products, verifying what Chen [100] mentions about previous studies that have revealed that moral obligation can greatly enhance the explanatory or predictive power of consumer intentions. Si et al. [14] also found that moral obligation is one of the most important factors driving intention and sustainable behavior in China. Governments must continue to promote ecological activities through regulation, procurement policy, and production policy to reform production and consumption practices [101]. Meanwhile, marketers should develop advertising messages that will influence final green purchase behavior through instructions about how to discard the green product after consumption or reuse it to increase ecologically conscious behavior. Finally, the relationship between willingness to pay and green purchase intention was found to be non-significant, so hypothesis 6 was rejected. Given the situation presented, it can be said that when consumers are aware of environmental issues, they are less sensitive to prices and are willing to pay higher prices for products [70]. In addition, companies must improve their production processes to offer quality ecological products, allowing consumers to have a greater intention of buying them and engage in sustainability.

## 6. Conclusions

In conclusion, the study enriches existing knowledge in the field of green consumption in an emerging country [102]. It presents a predictive sustainable model based on the theory of planned behavior in determining the consumers' intention as well as behavior towards purchasing green products in the Mexican context. The findings support the inclusion of ecological conscience and moral obligation as additional constructs, improving the predictive power of the theoretical framework in determining consumers' green purchase intention. Ecological conscience emerged as the most significant determinant of consumers' green purchase intention followed by moral obligation and perceived behavioral control. This study suggests that Mexican consumers with a high ecological conscience and moral obligation have great concern about environmental problems. It indicates their commitment and loyalty to the environment and a strong commitment to sustainability. However, attitude, subjective norms, and willingness to pay had no significant impact on purchase intention. The findings indicate that the inclusion of new constructs (moral attitude and environmental concern) in the TPB has improved the model fit. Hence, the addition of these new constructs in the TPB while predicting consumers' intention to purchase green products in emerging markets is recommended.

## 7. Limitations and Future Research Directions

The study has certain limitations. First, the present study was conducted in northeastern Mexico, so for future research, other regions of the country can be contemplated and it can be divided into different age groups to create a better understanding of purchase behavior [103]. Second, the green product presented in the measurement instrument was a bamboo toothbrush, so another type of product could be used even if the same variables of the present research are used. Finally, studies can be conducted in which the ecological conscience and moral obligation variables are analyzed as moderators or mediators of the TBP variables.

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## Appendix A



Figure A1. Advertisement of the green product in Mexico.

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