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Examining Drivers of Environmentally Conscious Consumer Behavior: Theory of Planned Behavior Extended with Cultural Factors

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Abstract: The growing evidence of rapid urbanization and fast growth of consumption is forcing policymakers and researchers to play an active role in reducing sustainability burdens and preserving environmental wellness for future generations. Considering that environmental degradation interests people around the world and that the existent literature shows limited research works conducted in developing countries, this paper aims to investigate some predictors of environmentally conscious consumer behavior through a study conducted in a developing country (Tunisia). A conceptual framework was developed as an extension of the theory of planned behavior (TPB) and aims to shed light on the direct relationships between environmentally conscious consumer behavior and its predictors, which are environmental concern, perceived consumer effectiveness, and willingness to be environmentally friendly. The moderating roles of cultural factors (collectivism, long-term orientation) in these relationships were also examined. The findings of quantitative data collected through a web survey and analyzed through the structural equation modeling method (SEM) revealed that environmental concern, perceived consumer effectiveness, and willingness to be environmentally friendly are important motives for environmentally conscious consumers' behavior. The cultural factor collectivism significantly strengthens the relationships between environmentally conscious consumer behavior and its predictors. The moderating role of long-term orientation is also positive but too weak. This study is among the few studies that adopt TPB in the context of environmental conscious consumption and examine the direct relationships between behavior and its predictors without the mediation of intention. It also extends the TPB by assessing the moderating role of cultural factors. The results of this study offer relevant managerial recommendations for marketers to promote favorable attitudes toward environmental issues and implement relevant strategies to the benefit of the environment and people. Understanding the moderating role of culture can also help managers to promote environmentally conscious behaviors in other countries.

Keywords: cultural factors; environmental concern; environmentally conscious consumer behavior; perceived consumer effectiveness; willingness to be environmentally friendly

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1. Introduction

Over recent years, it has become obvious that the environment we are living in is in danger and that several serious problems threaten sustainable development. Furthermore, there is increasing evidence that environmental degradation mainly occurs due to crimes committed by humans against nature [1]. The existing literature on sustainability has argued that human activities are the first source of pollution, depletion of natural resources, over usage of renewable resources, forest fires, global warming, and biodiversity loss [2,3]. Therefore, scholars have argued that the best pathway to reduce the negative effects of individuals on the environment is through raising their consciousness about environmental problems [4–6].

Recently, the prompt population growth coupled with rapid industrialization and urbanization led to the rapid growth of consumption around the world, which, in turn, resulted in several serious environmental issues [1,7,8]. To counter these issues, countries are nowadays working to develop the consciousness of their people towards environmental problems and shift their preferences toward more environmentally friendly consumption [6]. Then, consumers should necessarily become more careful and friendly towards their environment and behave in a more ecologically conscious way. Although it is obvious that individuals' awareness of environmental issues is rising worldwide, there is little evidence that their attitude has changed accordingly [4,9]. Research works have showed that factors such as poor knowledge, high prices, beliefs about product efficacy, availability, and skepticism associated with environmental claims may present significant barriers to purchase eco-friendly products [10,11]. To reverse the trend, it has become necessary to understand the motives of environmentally conscious consumer behavior [12]. The existing research has an almost exclusive focus on developed markets, maybe due to the growing demand for this category of products (environmentally friendly). Emergent markets also present interesting dilemmas as long as environmental health is the overriding concern of all humanity [7]. The present study is conducted in an emerging market, namely Tunisia. This country is collectivist, with unique socio-cultural traits [13]. Tunisia produces annually almost 2.5 million tons of solid waste [14]. Based on the report of an NGO (dating back to 9 June 2019), it is ranked fourth among the countries of the Mediterranean area in throwing plastic wastes into the sea. In 2019, fires mainly caused by human activities destroyed nearly 2000 hectares of forests in this country [15]. Moreover, the rejection of industrial phosphate wastes in the Gulf of Gabes (a southeastern city of Tunisia) resulted in an ecological catastrophe [16]. These are mere examples. Tunisia is only an example of an emerging country, where environmental consciousness remains a relatively new concept to which people have just started to adjust [7,17]. Therefore, researchers, as well as opinion makers in these countries, are called to put much more effort into raising people's awareness about environmental issues and pushing them to behave in an eco-friendlier manner.

Studies have revealed that consumer behavior is also a cultural aspect, as long as the culture is an important factor in determining an individual's social behavior [18,19]. Indeed, in the attempt to understand why people have such behaviors, cultural values appear to be of considerable interest. This has already been revealed by a growing number of studies in marketing. More particularly, for studies about environmentally conscious consumption, there is a growing interest in psychological factors and their role in making the consumer behave in a more respectful way towards the environment [5,20]. These factors combine value orientations, such as cultural and personal values, with components of theory of planned behavior, such as attitude, and environmental beliefs that predict environment-friendly purchase behavior [21,22]. However, there is still no clear consensus, since the consumer's behavior often varies across cultural contexts [23].

It has been argued that the theory of planned behavior (TPB) underlines the main determinants of consumers' behaviors toward a particular product or service and permits the exploration of the effect of the other contextual factors [1,24]. This flexibility has allowed researchers to extend the TPB through the test of other factors on consumer behavior; therefore, this theory has become the basis of frameworks in several fields, particularly in the field of pro-environmental behaviors [1,25–28]. However, the literature reveals that most of these studies have focused on the intention as the central variable of TBA, investigated its predictors (social norms, attitude, perceived behavioral control), and assumed that it fully mediates the relationships between these predictors and consumer actual behavior [29,30]. Moreover, according to Kim and Han [31], this intention was found to be the most important driver of consumer behavior. However, additional studies have found an action gap between intentions and behavior, which is mostly explained by the level of confidence in eco-friendly products and their premium prices [32,33]. Most of these studies were conducted in developed economies.

Accordingly, this study is among the few studies that investigate the direct relationship between behavior and its predictors without the mediation of intention. More precisely, to the best of our knowledge, it is the first study to test the direct effect of environmental concern and willingness to be environmentally friendly, as substitutes for attitudes, and perceived consumer effectiveness, as substitutes for perceived behavioral control on ECCB [1,34]. Moreover, this study is among the rare attempts to extend the TPB through the examination of the moderating role of cultural factors (collectivism, long-term orientation) in the relationships between behavior and its predictors. The choice of collectivism and long-term orientation as moderators can be explained by the fact that they are considered by several studies to be among the most accepted moderators that have a crucial impact on consumer behavior towards eco-friendly products [35,36]. Furthermore, regarding the impact of long-term orientation on ECCB, it seems interesting to study it as environmental consciousness requires a long-term view of our planet [5].

2. Research Hypotheses Development

2.1. The Theory of Planned Behavior

The theory of planned behavior (TPB) is considered to be among the main socio-psychological behavioral theories, which showed its robustness to explore pro-environmental consumer behavior. It is an updated version of the theory of reasoned action (TRA) and assumes that behavior is mainly predicted by the intention, which in turn, is predicted by three independent constructs, such as attitude, subjective norm, and perceived behavioral control [24]. The TPB model is widely used by researchers to identify the determinants of environmental behavior [37–39]. It also showed its validity in organic food choice [40], recycling behaviors [41], and green purchase intention [42–44]. In sum, it is well supported empirically as a theoretical foundation to investigate consumers' green behaviors [45]. Most of these studies have focused on the intention and found it a vital mediator between consumer behavior and its predictors [5,26,28,46,47]. However, other studies argued that there is an action gap between intention and behavior and this gap is mostly dependent on the level of confidence that consumer has in eco-friendly products, as well as the level of their prices [33,48]. In the context of this study, we used only two variables of this approach. The first is the "attitude", which is substituted by environmental concern and willingness to be environmentally friendly following the approach of Fransson and Garling [34] and AlZubaidi et al. [1]. The second variable used is perceived consumer effectiveness, which substitutes the original variable "perceived behavioral control" following the approach of AlZubaidi et al. [1].

2.2. Environmentally Conscious Consumer Behavior and Its Predictors

Environmentally conscious consumer behavior (ECCB) is very often used interchangeably with ecologically conscious consumer behavior or pro-environmental behavior [10,12,49,50]. It refers to pro-social behavioras the individual's efforts are costly in terms of money and/or time and provide benefit to the individual performing the action [12]. It is also a behavior driven by altruistic motivations and expresses the consumers' awareness of the issues of their environment [51,52]. For a better understanding of environmentally conscious consumer behavior, it is important to study its predictors.

2.2.1. Environmental Concern (EC)

Prior studies have defined environmental concern as individuals' awareness of environmental issues and the readiness to solve them [53,54]. For Roberts [55] (p. 81), environmental concern is a kind of attitude that is directly correlated with ECCB. According to the theory of planned behavior (TPB), attitude does not have a significant direct impact on behavior and intention plays a full mediation in this relationship [24,29,30,56–58]. Other studies developed in the context of green marketing have found that environmental concern is a vital predictor of consumer behavior toward green products [19,48,59]. In this regard, researchers have argued that the more consumers are concerned about

environmental problems, the more they are able to exhibit environmentally conscious behavior [31,60,61]. Albayrak et al. [2] revealed that EC includes three dimensions, which are an egoistic, altruistic, and biospheric concern. The results of their empirical study showed that people who have high levels of altruistic and biospheric concern are more likely to engage in environmentally friendly behavior. Accordingly, the first hypothesis was developed as follows:

Hypothesis 1 (H1). *Environmental concern has a positive and significant effect on ECCB.*

2.2.2. Perceived Consumer Effectiveness (PCE)

From an environmental perspective, PCE reflects consumers' judgment of their capacity to affect environmental issues [62] (p. 103). It is also a controlling factor and translates how much consumers believe in their individual actions to play a vital role in fixing environmental problems [1]. Several past researchers [54,62,63] agreed that PCE is related to the concept of perceived behavioral control, which has been considered with the intention of TPB as a direct predictor of behavior. In the same vein, Lee and Holden [12] stated that PCE is among the most important direct predictors of environmentally conscious consumer behavior without the mediation of intention. This is because when consumers believe that their personal actions can have a significant impact on environmental wellness, they will behave more environmentally friendly. Furthermore, Roberts [55] stated that PCE is the most important factor of ECCB, exceeding all the psychographic and demographic correlates examined. The direct positive association between PCE and ECCB was also approved by [10,54,64]. Relying on this literature review, the second hypothesis was developed as follows:

Hypothesis 2 (H2). *Perceived consumer effectiveness has a positive and significant effect on ECCB.*

2.2.3. Willingness to Be Environmentally Friendly (WEF)

According to Abdul-Muhmin [65], WEF reflects the individuals' readiness to behave in an environmentally friendly manner. He considered it as an aspect of intention that constitutes a primordial predictor of behavior. According to Kautish and Sharma [6], WEF is a positive predisposition to act, which reflects a favorable attitude toward environmental issues. For González-Rodríguez et al. [66], WEF is a component of environmental concern and expresses the ability of an individual to behave in an eco-friendly way in order to reduce environmental degradation. Based on the findings of their study developed in an emerging market (India), WEF has a positive and direct effect on ECCB [65]. In the same vein, Yarimoglu and Binboga [54] stated that customers who are more willing to be environmentally friendly are more likely to behave environmentally conscious. This positive and direct association between attitude and behavior is also supported by the value-attitude-behavior (VAB) approach of Homer and Kahle [67]. Accordingly, the third hypothesis was proposed:

Hypothesis 3 (H3). *Willingness to be environmentally friendly has a positive and significant effect on ECCB.*

2.3. Moderating Role of Cultural Factors: Collectivism and Long-Term Orientation

The existent literature in marketing revealed that culture is one of the vital drivers of an individual's social behavior. Therefore, culture is considered a central factor for better understanding consumer behavior [18,19,68]. More particularly, for studies about environmentally conscious consumption, there is a growing interest in psychological factors and their role in making the consumer behave in a more respectful way towards the environment [5,20]. Two dimensions of consumers' culture were investigated in this study and tested their moderating roles on ECCB, which are collectivism and long-term

orientation. The choice of these dimensions can be explained by the fact that they are considered by several studies to be among the most accepted moderators that have a crucial impact on consumer behavior towards eco-friendly products [35,36]. Furthermore, regarding the impact of long-term orientation on ECCB, it seems interesting to study it as environmental consciousness requires a long-term view of our planet [5].

The concept of collectivism was studied for the first time by Hofstede [18]. He distinguished collectivism at a societal level and collectivism at an individual level. In this study, we focus on the latter to test its impact on consumer behavior.

Hofstede [68] stated that collectivism implies prioritizing group beliefs over individual beliefs. It also expresses the conviction that persons are interdependent as parts of one or more groups, such as family, peers, and society [22,69]. In collectivist cultures, individuals are more concerned with within-group interests and social issues [70]. They are, therefore, more likely to demonstrate cooperative behavior when facing social dilemmas associated with environmentally friendly behavior [22].

Nguyen et al. [5] stated that, in an emerging market, the people who have a high level of collectivism show greater concern for the environment and are more likely to act in an environmentally friendly manner. According to Kim and Choi [31], the groupthink mentality of collectivist individuals motivates eco-efficiency as a greater sense of duty and self-empowerment. For these individuals, there is a greater tendency towards environmentally conscious behavior. More specifically, these authors found that collectivism is positively correlated with concern about the environment and consumer perceived consciousness that led to eco-friendly behavior. In the same vein, Cho et al. [36], Sreen et al. [70], and Chwialkowska et al. [22] suggested that collectivist individuals are more likely to buy eco-friendly products and to be engaged in environmentally conscious behavior. Accordingly, the following hypotheses are proposed:

Hypothesis 4a (H4a). *Collectivism significantly strengthens the relationship between EC and ECCB.*

Hypothesis 4b (H4b). *Collectivism significantly strengthens the relationship between PCE and ECCB.*

Hypothesis 4c (H4c). *Collectivism significantly strengthens the relationship between WFE and ECCB.*

Long-term orientation (LTO) is defined as "the cultural value of viewing time holistically, valuing both the past and the future rather than deeming actions important only for their effects in the here and now or the short term" [71] (p. 457). Hofstede [18] defined long-term orientation as a dimension of national culture, which refers to "the prospects perceived by an individual that a society would be in a position to overcome its problems over time". The values in long-term orientation cultures include thrift, having a sense of shame, consistency, and perseverance [72]. Chwialkowska et al. [22] considered the long-term orientation of an individual as a vital factor in determining an individual's social behavior. It implies investment in the future [13]. In an environmental context, recent studies have shown long-term orientation to develop attitudes pertaining to issues of the natural environment [73,74]. Samarasinghe [11]., on his part, stated that long-term orientation, as well as collectivism factors, are significant drivers of eco-friendly consumer behavior in Sri Lanka. Therefore, long-term-oriented consumers, generally, express positive attitudes toward the environment [75]. This reflects the egoistic, biospheric, and altruistic values of consumers as long as they are interested to ensure sustainable conditions for themselves, relatives, peers, and future generations [22,35,73]. The following hypotheses can, therefore, be proposed:

Hypothesis 5a (H5a). *LTO significantly strengthens the relationship between EC and ECCB.*

Hypothesis 5b (H5b). *LTO significantly strengthens the relationship between PCE and ECCB.*

Hypothesis 5c (H5c). *LTO significantly strengthens the relationship between WEF and ECCB.*

The above hypotheses are schematized in the following Figure 1.

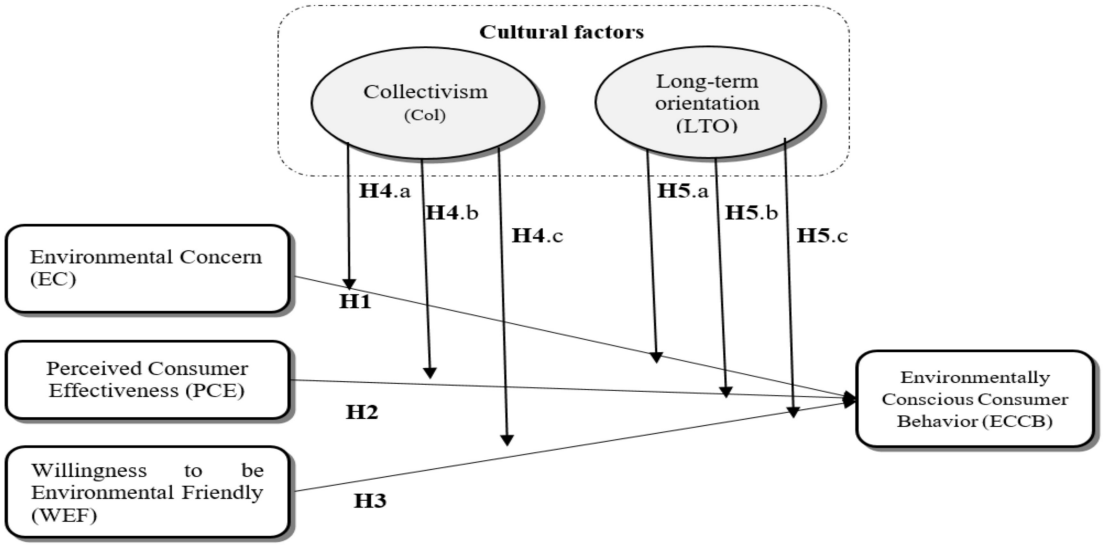

Figure 1. Proposal hypothesized research model.

3. Methods and Materials

3.1. Sample Characteristics and Data Collection

The target population of this study was educated consumers from urban areas. First, the choice of educated people was because, as verified by the environmental literature, they are more knowledgeable of eco-friendly products and, therefore, can effortlessly appreciate the concern and provide accurate responses compared with less-educated consumers [64,76]. Hence, the minimum education level for the respondents requested in the survey was graduates following the approach of Sreen et al. [70]. Second, data were collected from participants living in an urban region where eco-friendly products are available and the target is more familiar with this category of products, which includes green products, recycled products, and organic foods [77]. Due to the unavailability of a sampling frame for Tunisians with a minimum graduate level of education and consumers of eco-friendly products, a non-probabilistic convenience sampling was adopted. To obtain the required number from the population, the survey was created in Google Form and then shared on social media networks, namely WhatsApp groups; Instagram, Facebook, and LinkedIn. The survey link was also sent to professional emails of the department members. The data were collected over three weeks in July 2021. The choice of this country was for two reasons. Firstly, Tunisia is considered to be among the main wasteful countries in the Mediterranean; hence, the people's awareness of the environmental issues becomes of huge importance [15]. Secondly, the research studies about the environmental behaviors of Tunisian consumers are still limited to the best of our knowledge, and there is not yet a study investigating the role of culture in environmentally conscious behavior in this market. Before distributing the final version of the questionnaire, we pretested it on seven colleagues (faculties and researchers in marketing) to clarify ambiguous concepts and make the text simple, clear, and understandable. After the pre-tests, a few minor modifications were introduced to the survey instrument. The questionnaire was distributed in the French language to be clearer for most respondents. Although 747 customers agreed to participate in this study, only 721 responses were used. The others were removed from the analysis because they provided inappropriate responses (all the answers were identical). This sample size was considered acceptable according to Hair et al. [78] (p. 764) who recommended that the desired sample should include from 15 to 20 observations per variable. For this study, the sample includes over 52% females and almost 48% males, the majority (over 60%) are married. Over 20% of participants are aged

from 18 to 25 years old, over 24% aged from 26 to 35, over 18% aged from 36 to 45, 22.6% aged from 46 to 55, and the remaining more than 55 years old. All participants have at least a graduate level of education, which was a criterion to continue the survey. For individuals' monthly income, over 31% of the participants have less than TND 1000, over 42% have a monthly income between TND 1001 and 1500, and the remaining have more than TND 1500. The majority of the participants (80%) are service holders, business or self-employed, or employees. Table 1 contains the demographic details of the respondents.

Table 1. Proprieties of respondents (N = 721).

Variables/Criteria	Frequency	%	Variables/Criteria	Frequency	%
Gender			**Educational Background**		
Female	376	52.14	Undergraduate	118	16.37
Male	345	47.86	Graduate	242	33.56
Marital Status			Postgraduate	277	38.41
Married	432	59.91	Doctorate	84	11.65
Single	289	40.09	**Monthly Income (TND) ***		
Age			501–1000	225	31.21
18–25	146	20.24	1001–1500	306	42.44
26–35	175	24.27	+1501	190	26.35
36–45	133	18.44	**Occupation**		
46–55	163	22.60	Service holder	177	24.55
More than 55	104	14.43	Business or self-employed	196	27.18
			Homemaker	82	11.37
			employee	213	29.54
			Retired	53	7.36

* Tunisian dinar; TND 3.06 = USD 1 in 20 May 2022.

3.2. Measures

All the variables studied in this paper are measured through measurement scales, developed in prior studies in green marketing. Six-item scales are used for the different variables of the conceptual framework. Both EC and PCE were measured through the scale of Kim and Choi [31]. The measure of WTF was adapted from the scale of Abdul-muhmin's [65] and Zabkar and Hosta's [79]. Collectivism was operationalized in the questionnaire using the scale created by Sharma [69] and adapted to the environmental context by Nguyen et al. [5]. LTO was measured through the scale of Yoo et al. [74]. Lastly, the scale of Roberts and Bacon [61] was employed to measure the ECCB construct. The items of the different measurement scales are available in Table 2. The 5-point Likert scale extending from 1 (strongly disagree) to 5 (strongly agree) was employed to assess the indicators.

Table 2. Measurement model assessment.

Measurement Items	Factor Loadings	*t*-Value	CR	Cronbach's α	AVE
Environmental concern (EC)					
I am extremely worried about the state of the world's environment and what it will mean for my future	0.833	23.764	0.850	0.823	0.733
Humans are severely abusing the environment	0.845	34.724			
When humans interfere with nature, it often produces disastrous consequences	0.785	35.863			
The balance of nature is very delicate and easily upset	0.812	31.792			
Humans must live in harmony with nature in order to survive	0.738	28.647			

Table 2. *Cont.*

Measurement Items	Factor Loadings	*t*-Value	CR	Cronbach's α	AVE
Perceived consumer effectiveness (PCE)					
Each person's behaviour can have a positive effect on society by signing a petition in support of promoting the environment	0.833	38.764	0.888	0.798	0.721
I feel I can help solve natural resource problems by consuming eco-friendly products	0.766	28.692			
I can protect the environment by buying products that are friendly to the environment	0.833	26.085			
There is much more that we can do about the environment	0.783	32.837			
I feel capable of helping solve the environmental problems	0.836	33.782			
When I buy products, I try to consider how my use of them will affect the environment and other consumers	0.735	34.765			
Willingness to be environmental friendly (WEF)					
I willingly and wholeheartedly take responsibility to become environment-friendly	0.734	28.846	0.798	0.763	0.767
I am willing to pay higher prices for environment-friendly products	0.782	37.927			
I will boycott the products that damage the environment in one way or other	0.783	38.947			
I am willing to take steps to control my activities that are not good for the environment	0.763	33.638			
I am willing to stop buying products from companies that are guilty of polluting the environment	0.737	38.022			
I am willing to sacrifice for the sake of slowing down pollution	0.783	35.827			
Environmentally consciousness consumer behavior (ECCB)					
When there is a choice, I always choose the product that contributes to the least amount of pollution	0.766	33.827	0.833	0.783	0.734
Whenever possible, I buy products packaged in recyclable containers	0.749	34.982			
When I purchase products, I make a conscious effort to buy those products that are low in pollutants	0.865	33.762			
When I have a choice between two equal products, I always purchase the one less harmful to the natural environment	0.798	34.827			
I do not buy a product if the company that sells it is environmentally irresponsible	0.763	31.782			
I have switched products for ecological reasons	0.759	33.782			
Collectivism (Col)					
The well-being of my group members is important to me	0.864	28.972	0.876	0.833	0.793
Individuals should only pursue their goals after considering the welfare of the group	0.846	27.384			
I work hard for the goals of a group, even if it does not result in personal recognition	0.802	31.827			
Family members should stick together, even if they do not agree	0.874	33.726			
I enjoy sharing items and spending time with my group members	0.765	34.928			
People who are important to me want me to buy eco-friendly products	0.796	33.203			

Table 2. *Cont.*

Measurement Items	Factor Loadings	*t*-Value	CR	Cronbach's α	AVE
Long-term orientation (LTO)					
I tend to use my money carefully in the present so that I can save it for future	0.745	28.993	0.766	0.734	0.736
Failure does not stop me from trying again and again	0.744	31.736			
I work hard for success in future	0.870	33.827			
I would like to be secure in the future; hence, I prefer long-term planning	0.796	32.917			
I do not mind giving up today's fun for success in the future	0.736	30.918			

Notes: CR = composite reliability; AVE = average variance extracted.

The present study used the structural equation modelling (SEM) method, which allows the assessment of the linear relations between the dependent variables in a unidirectional way [80]. Furthermore, this method allows the estimation of latent variables through observed variables and permits testing of the model so the structure can be imposed and evaluated as to fit the data.

4. Results

4.1. Measurement Model Assessment

Firstly, as the tool used to collect data was a survey distributed through social media, which is known for the risk of bias, the assessment of common method bias (CMB) is recommended. We opted for the assessment of common method bias according to the approach of Harman's single factor test, which consists of the test of the total variance extracted by only a unique factor. Using SPSS, the value found is 28.133%, which is inferior to the threshold of 50% [81]. Accordingly, there is no risk of a common method of bias risk.

The maximum likelihood estimation was employed to assess the measurement model fit. The values found were all above the acceptable level (χ^2 (298) = 433.64, $p > 0.05$; $\chi^2/df = 1.56$; GFI = 0.94; CFI = 0.98; TLI = 0.97; RMSEA = 0.02). Accordingly, the good fit is confirmed for the causality model [82].

The measurement model tests also showed that the values of Cronbach alpha (α) ranged from 0.734 to 0.833, surpassing the threshold value of 0.7, expressing the good internal consistency of the scales used [82]. Therefore, the reliability of the different scales was confirmed. Factor loadings, average variance extracted (AVE) values, and composite reliability (CR) values were used to assess convergent validity.

As shown in Table 2, the values of factor loadings ranged from 0.734 to 0.874. All AVE scores were between 0.721 and 0.793 and CRs scores ranged from 0.766 and 0.888. These findings are acceptable according to Fornell and Larcker [83] and Hair et al. [82]. Accordingly, the convergent validity of the constructs was confirmed. These results are detailed in Table 2.

To assess the discriminant validity, the approach of Fornel and Larket [83] is used. It stipulates that the AVEs' square roots must be higher than correlations between constructs through a triangular matrix to confirm discriminant validity. This condition is supported for all the variables, as shown in Table 3. Accordingly, there is good discriminant validity for every construct of the conceptual model. Furthermore, the results showed that all correlation values between the constructs were less than 0.7; thus, we confirm the non-existent multicollinearity problems [84].

Table 3. Means, standard deviations, and correlations of the constructs.

Latent Variables	Mean	SD	EC	PCE	WEF	ECCB	Col	LTO
EC	5.12	1.533	**0.856**					
PCE	4.93	1.534	0.664 **	**0.849**				
WEF	3.95	1.134	0.685 **	0.573 ***	**0.875**			
ECCB	3.59	1.532	0.561 ***	0.662 **	0.532 ***	**0.856**		
Col	2.67	0.966	0.674 **	0.561 ***	0.362 ***	0.666 **	**0.890**	
LTO	4.23	1.564	0.354 **	0.433 ***	0.113 **	0.458 ***	−0.123 **	**0.857**

Notes: *** $p < 0.01$; ** $p < 0.001$. The AVEs' square roots are highlighted in bold at diagonal

4.2. Structural Model: Hypotheses Testing

To test the structural relationships between the latent variables, and consequently the research hypotheses, the structural model was assessed. At this level of analysis, the moderating role of collectivism and long-term orientation was not assessed.

The good fit of structural model was examined. The main values found are as follows: normed χ^2 = 1.887; GFI = 0.93; AGFI = 0.90; CFI = 0.91; IFI = 0.91; TLI = 0.93; relative normed fit index (RNFI) = 0.93 and RMSEA = 0.032. These values are acceptable as they are within the recommended tolerable levels [80]. Therefore, we can say that the overall structural model presents good adjustment.

In order to test the hypotheses, we examined β-values (standardized regression coefficients), t-values as well as p-values. The path coefficients found indicate that 'environmental concern, EC' had a positive significant effect (β = 0.435, t-value = 13.021; $p < 0.01$) on ECCB. Therefore, H1 was supported. As for the construct 'perceived consumer effectiveness, PCE', it also had a positive significant influence on ECCB (β = 0.247, t-value = 5.287; $p < 0.05$). So, H2 was supported. The construct's willingness to be environmentally friendly (WEF), on its part, had a positive significant influence on ECCB (β = 0.383, t-value = 12.453, $p < 0.01$). Therefore, H3 was also supported. These results are presented in Table 4.

Table 4. Hypotheses testing.

	Hypotheses	β-Values	t-Values	Results
H1	EC→ECCB	0.435	13.021 ***	Supported
H2	PCE→ECCB	0.247	5.287 **	Supported
H3	WEF→ECCB	0.383	12.453 ***	Supported

Note: *** $p < 0.01$. ** $p < 0.05$.

4.3. Moderating Effects of Collectivism and Long-Term Orientation

For this study, there are two moderators, including collectivism and long-term orientation. They were examined through multi-group structural equation modeling based on the method of Byrne [85]. This method includes two stages, measurement invariance and structural invariance. To examine the moderating role of collectivism, the whole sample was divided into two sub-samples of the high level of collectivism (n_1 = 367) and low level of collectivism (n_2 = 354) by employing a median split procedure [6].

To establish causality, we examined the unconstrained multi-group model. The values parsed (χ^2 = 422.534; df = 248; p = 0.001; Normed χ^2 = 1.686; GFI = 0.91; AGFI = 0.91; CFI = 0.93; IFI = 0.94; TLI = 0.92; RMSEA = 0.037) were within the recommended tolerable levels [82]. To compare the fully constrained and unconstrained model across high and low collectivism, we considered the chi-square test of difference ($\Delta\chi^2$) [86]. Since model invariance was not established, the two groups were found to be different ($\Delta\chi^2$ = 20.733; Δdf = 2; p = 0.001). In order to assess how the groups are different, we constrained the structural paths in a sequential manner.

The findings show that the relationship between EC and ECCB varies significantly ($\Delta\chi^2$ = 4.625; Δdf = 1; $p < 0.01$) across the high collectivism consumer group (β = 0.484;

t = 4.872; $p < 0.01$) and low collectivism consumer group (β = 0.321; t = 3.219; $p < 0.01$). Therefore, H4a is accepted. The relationship between PCE and ECCB varies significantly ($\Delta\chi^2$ = 3.281; Δdf = 1; $p < 0.05$) across the higher collectivism consumer group (β = 0.264; t = 3.817; $p < 0.05$) and the low collectivism consumer group (β = 0.178; t = 3.167; $p < 0.05$). Therefore, H4b is accepted. In addition, the relationship between WEF and ECCB varies significantly ($\Delta\chi^2$ = 4.884; Δdf = 1; $p < 0.01$) across the high collectivism consumer groups (β = 0.513; t = 5.318; $p < 0.01$) and low collectivism consumer groups (β = 0.412; t = 3.782; $p < 0.01$). Therefore, H4c is also accepted. These findings are summarized in Table 5.

Table 5. Moderating role of collectivism.

Hypotheses		High Collectivism		Low Collectivism		$\Delta\chi^2$	Moderation
		Estimate	*t*-Value	Estimate	*t*-Value		
H4a	EC→ECCB	0.484	4.872 ***	0.321	3.219 ***	4.625 ***	Yes
H4b	PCE→ECCB	0.264	3.817 **	0.178	3.167 **	3.281 **	Yes
H4c	WEF→ECCB	0.513	5.318 ***	0.412	3.782 ***	4.884 ***	Yes
% of variance explained for ECCB		68.6		24.8			

Note: *** $p < 0.001$; ** $p < 0.005$.

Similarly, the moderating role of long-term orientation was assessed through splitting the whole consumer sample into sub-samples of long orientation (n_1 = 358) and short orientation (n_2 = 363) consumer groups. We checked the structural multi-group model fit. The values found (χ^2 = 878.635; df = 476; p = 0.001; Normed χ^2 = 1.792; GFI = 0.92; AGFI = 0.92; CFI = 0.94; IFI = 0.95; TLI = 0.93; RMSEA = 0.028) showed a good model fit for all indices.

The relationship between EC and ECCB varies significantly ($\Delta\chi^2$ = 4.008 **; Δdf = 1; $p < 0.05$) across the long=term consumer orientation group (β = 0.158, t-value = 4.663 ***; $p < 0.01$) and short-term orientation group (β = 0.146, t-value = 2.528 ***; $p < 0.01$). Therefore, H5a is supported. Long-term orientation was found to not have a significant moderator role in the relationship between PCE and ECCB across the long-term orientation consumer group (β = 0.117; t = 1.217; $p > 0.05$) and short-term orientation group (β = 0.103; t = 1.132; $p > 0.05$). Therefore, H5b is not supported. In the same vein, long-term orientation was found to not have a significant moderator role in the relationship between WEF and ECCB across the long-term orientation consumer group (β = 0.103; t = 1.321; $p > 0.05$) and short-term orientation group (β = 0.089; t = 1.092; $p > 0.05$). Hence, H5c is not supported. These findings were summarized in Table 6.

Table 6. Moderating role of long-term orientation.

Hypotheses		Long-Term Orientation		Short-Term Orientation		$\Delta\chi^2$	Moderation
		Estimate	*t*-Value	Estimate	*t*-Value		
H5a	EC→ECCB	0.158	4.663 ***	0.146	2.528 ***	4.008 **	Yes
H5b	PCE→ECCB	0.117	1.217	0.103	1.132	-	No
H5c	WEF→ECCB	0.103	1.321	0.089	1.092	-	No
% of variance explained for ECCB		28.3		18.7			

Note. *** $p < 0.01$; ** $p < 0.05$.

5. Discussion and Implications

5.1. Discussion

The objective of this study was twofold. On one hand, it aims to test the direct relationships between the independent variables (EC, PCE, WEF) and ECCB. On the other hand, it aims to examine the moderating roles of cultural factors (collectivism and LTO) on the relationships between ECCB and its three proposed predictors.

Based on the findings of this study, EC was found significant to predict ECCB (H1). This finding is in line with the work of several researchers [6,87–89]. As it was defined

by Chuah et al. [89], EC refers to the extent to which the consumers are concerned about their environmental problems and providing efforts to solve them. The more customers are concerned about environmental issues, the more they behave in an environmentally conscious manner [53]. Referring to the principles of TPB, EC is shown as an aspect of attitude, which constitutes the main predictor of behavior [56]. However, this finding is not similar to that of Majeed et al. [90] who found that the relationship between EC and behavior is strong but negative. The authors explained this relationship by the fact that "consumers who are lowly concerned about the environment, are less likely to pay the high price for purchasing eco-friendly products" (p. 20).

Similarly, PCE was found to be a significant predictor of ECCB (H2). This finding is in line with Roberts [55], and Kautish and Sharma [6]. According to Ellen et al. [62], PCE is related to the concept of perceived behavioral control, which constitutes intention direct predictors based on the TPB. Lastly, the relationship between WEF and ECCB (H3) was also found to be significant and positive. This is consistent with past empirical studies by researchers such as Kautish and Sharma [6] and Abdula Muhmin [65]. Moreover, as WEF is considered as the favorable disposition to act or high intention to behave in such a way [65], it should be a significant direct predictor of consumer behavior as per the principles of Ajzen's TPB.

In line with some prior studies, for some situations, it is necessary to directly predict behavior by attitudes and perceived behavioral control, without the full mediation of intention [32,33,48]. This finding is still in line with TPB as in developing countries, there is often an action gap between intention and behavior, due to the high inability to purchase premium-priced eco-friendly products and low level of confidence in these kinds of products to meet the expectations [32,91]. The hypotheses were tested in the Tunisian context. These research outcomes are in tandem with a prior literature review developed in emerging markets in which people expressed growing awareness and important knowledge of environmental issues and became more likely to behave in a more environmentally conscious way [17,46,65,92].

Our framework, which is inspired by Ajzen's TPB, has been extended through the test of moderating influences of collectivism and long-term orientation. The findings suggest that collectivism significantly strengthens the relationships between EC, PCE and WEF, and ECCB (H4a, H4b, H4c). This is in line with the findings of Cho et al. [36] and Sreen et al. [70], who supported the significant correlation between the collectivist value of a society and the eco-friendly behavior of its consumers. The hypotheses were tested in a Tunisian context. This means that despite the recent advances in liberalization, globalization, and growth of urban areas in Tunisia, collectivist societies continue to hold collectivist beliefs [13,72,93]. Indeed, the respondents express their willingness to sacrifice their individual goals for group goals, and hence make decisions that society approves [72].

Long-term orientation was found to play a significant moderating role in only the relationship between ECCB and EC. However, this moderation is considered weak compared with that of collectivism. For the relationships between the two predictors (PCE and WEF) and ECCB, the moderating roles of long-term orientation were also found positive and too weak. This may have two explanations. First, Tunisia is among the countries with a short-term horizon in relation to the future according to Hofstede [68]. In this sense, Tunisian consumers care more about the present than about the future when purchasing their products [13]. This can be accounted for by the weak awareness of the impact of today's behavior on the future of the environment [17]. In this vein, previous studies showed that environmental issues in developing countries are more intricate than elsewhere [22,94]. The research did show that when people from poorer countries (such as Tunisia) are asked to rank the most worrying problems to them, environmental issues actually appear in the lower ranks [11]. Second, since the eco-friendly products are, generally, highly priced compared with their conventional counterparts [91], the limited incomes of consumers in developing countries may make them think day by day when purchasing their prod-

ucts and, therefore, choose the products that are "friendlier" for their budget more than their environment.

5.2. Theoretical Implications

From a theoretical perspective, this paper looks to make a substantial contribution to the literature pertaining to environmentally friendly behavior for several reasons.

First, this study is among the rare studies that investigate the TPB in the context of conscious consumption and examine the direct association between behavior and its predictors without the full mediation of intention. In fact, three independent variables were tested in this study as direct drivers of behavior, which are the environmental concern, perceived consumer effectiveness, and willingness to be environmentally friendly. Following the approach of AlZubaidi et al. [1] and Fransson and Garling [34], the environmental concern and willingness to be environmentally friendly were considered as the substitutes for attitudes, and perceived consumer effectiveness was considered as the substitute for perceived behavioral control. The findings showed positive and significant effects on ECCB. These findings allow us to say that intention is not always a central predictor of attitude and its mediation is not always full. This is because attitude and behavior can have a strong direct linkage as per the cognitive hierarchal model [67]. Second, this study is among the few studies that introduce cultural factors in the TPB for a better understanding of environmentally conscious consumer behavior. Moreover, it is considered, to the best of our knowledge, among the earliest of its kind to be conducted in the Tunisian context, where environmentally-conscious consumption is still in its nascent stage [91] and the test of cultural values at a personal level on consumer behavior is absent. Third, as shown in this study, because of its importance, the dimensions of culture should be used as moderators to determine how culture can serve the purpose of obtaining a better understanding of consumer behavior and how these behaviors differ across countries. This allows managers to adapt their strategies according to the cultural specificities of every market.

5.3. Managerial Implications

From a managerial perspective, our findings showed that concern about the environment and the willingness to be environment-friendly are significant motives to behave in an environmentally conscious way. However, perceived consumer effectiveness seems to exert a less important influence. This means that a Tunisian consumer is aware of the environmental concerns and has the willingness to be an eco-friendly consumer; however, he/she does not sufficiently believe that their individual acts can be effective in protecting the environment. Therefore, companies must persuade consumers that their behavior and actions when consuming eco-friendly products can make a difference in saving the environment and protecting it from further deterioration [77]. To make this effective, Government policymakers, as well as private businesses, should enhance consumer awareness and knowledge of environmental issues through a set of procedures and policies aiming to promote green activities and enhance the purchase of eco-friendly products. We suggest, for example, reducing the prices of eco-friendly products, highlighting these products by putting them on special shelves within supermarkets, enacting laws punishing the rejection of waste in the environment, communicating the eco-friendly products in public spaces and media, etc.

Collectivist beliefs lead people to make decisions in favor of their reference groups [17]. They express altruistic values that are related to the welfare of others. This variable was found to be significant in enhancing ECCB. Companies and policymakers should profit from this opportunity by communicating the message of the necessity to protect the environment as an expression of respect for others.

Long-term orientation has been found to have weak and insignificant moderating roles in the motives of ECCB in the Tunisian context. This expressed the weak or insufficient consciousness of consumers about the long-run impact of their actions and behaviors on their environment. Policymakers and private companies should put more effort in educat-

ing consumers and persuading them that unconscious behavior toward the environment can affect the quality of life in the short and long term, and consequently, lead to environmental changes. This is possible through various procedures, such as intensive awareness campaigns in the media and public spaces, including environmental education in school programs in order to raise the green thinking of the new generations, tree festivals, etc. In this direction, the Tunisian Government has already set up some initiatives and procedures. Prohibiting plastic bags and replacing them with green bags in all supermarkets, encouraging recyclable production, and broadening green spaces in cities are only a few examples. However, this effort is still insufficient as long as this country remains among the most polluting countries in the Mediterranean area. Therefore, we suggest that the Government plays a more significant and active role in creating the right economic and social environment to enhance ECCB. This is possible through several methods, such as enhancing the awareness of people about serious environmental dangers through more awareness campaigns in public media channels (TV, radio, street posters, . . .), enhancing the quality of public transport to motivate people to use it instead of their personal cars, providing recycling bins in each division in companies, and making the use of environment-friendly products compulsory and intensive in homes and workplaces [77]. The private sector is also requested to show its efforts and commitment to the environment. This is through the implementation of low-carbon practices to meet environmental sustainability, green supply chain, and reduce wasteful activities [95].

6. Limitations and Future Research

This study cannot be closed without mentioning its limitations. Firstly, a convenience sampling method was used in this study due to the unavailability of frame sampling and recent statistics about Tunisian population characteristics. This limit cannot allow the generalization of the results. Secondly, the hypotheses were tested based on a survey conducted in only one emerging country (Tunisia); hence, the results cannot be also generalized. However, this study can act as a basis to lead a cross-sectional investigation of two developing countries that do not have the same cultural dimensions as Tunisia and Romania or Brazil [93]. Thirdly, this research work focused on a broad product category, namely eco-friendly products, while the latter can be subdivided into several categories, such as recycled products, green products, or organic food, and previous studies have argued that consumers' behaviors can differ according to the products' category [91]. Further research should focus on a specific category of eco-friendly products in order to provide specific recommendations for practitioners. Fourthly, more exogenous variables, such as health consciousness, consumer lifestyle, or social influence, can provide a clearer picture and a deeper insight to practitioners for a better understanding of environmentally conscious consumer behavior, and consequently help them to implement the appropriate strategies.

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