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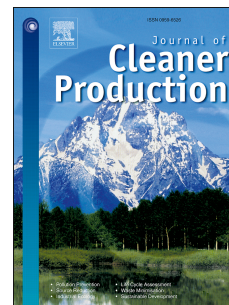
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The Influence of Cultural Values on Pro-environmental behavior

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The Influence of Cultural Values on Pro-environmental Behavior

Abstract

Cross-country differences in pro-environmental attitudes and corporate social performance are recognized. However, scarce evidence exists on how the cultural values influence our pro-environmental behavior. To address this gap, we conceptualize a model of cultural influences on pro-environmental consumer behavior. We extend the framework of the Theory of Planned Behavior by including additional variables (environmental values and environmental concern) shown to influence pro-environmental attitudes, intentions, and behaviors. We add to the sustainability literature by identifying central pro-environmental cultural value orientations: collectivism, femininity, future orientation, and uncertainty avoidance, and integrating them into the underlying model of planned behavior as moderating variables. Our theoretical contribution lies in conceptually identifying the cultural values that have a moderating effect on pro-environmental consumer behavior. We show how cultural values can influence the relationship between environmental concern and pro-environmental behavior, and thus mitigate the 'green gap,' and the gap between behavioral intentions and behaviors. Our conceptualization is a stepping-stone in recognizing and capitalizing on cross-cultural differences to promote pro-environmental behaviors across cultures. The principal goal of social agents promoting sustainability is formulating communication strategies that appeal to consumer values. In terms of practical implications, this research helps marketers effectively target culturally different consumer segments, which requires an understanding of the cultural and social influences of pro-environmental behaviors. Understanding the moderating role of cultural values also helps in promoting values related to pro-environmental attitudes in other countries.

1. Introduction

As socio-cultural values influence how people use natural resources, or how willing they are to behave sustainably (Park et al. 2007; Ringov & Zollo, 2007), culture may play an essential role in how society deals with a wide range of environmental issues (Ringov & Zollo, 2007). Therefore, scholars perceive culture as a platform for developing pro-environmental behavior hypotheses (e.g., Deng et al. 2006; Johnson et al. 2004; Oreg & Katz-Gerro, 2006; Paraskevopoulous et al. 2004; Schwartz 1994; Stolz et al. 2013). However, despite its importance, our knowledge of how cultural values influence pro-environmental values remains limited (Leonidou & Leonidou, 2011; Soyez, 2012).

While existing literature has opened the debate into what drives environmentally-friendly behaviors cross-nationally, it is not without limitations. An existing research stream focusing on corporate social performance and business ethics is often limited to cross-country comparisons of sustainable practices (e.g., Jackson & Apostolakau 2010; Lindell & Karagozoghu 2001; Mueller et al. 2007; Rao 2000), supply chain strategies (Aiello et al. 2015; Muriana, 2017), or the impact of pro-environmental strategies on firm's stock prices (Flammer, 2013). Without taking into consideration cultural values, this research stream has not provided a substantial explanation as to why cross-cultural differences exist.

Studies into corporate pro-environmental behaviors, business ethics, and social and institutional capacity for sustainability that took cultural values into account focused on cultural values of collectivism/individualism, gender egalitarianism and masculinity/femininity, uncertainty avoidance, and power distance. However, so far, they produced inconsistent results in terms of cultural influences. Contradicting results are reported about the role of collectivism/individualism. Some studies suggest that individualism is positively correlated with pro-environmentalism as measured by the social and institutional capacity for sustainability (Husted 2005) and sustainable corporate practices (Vachon 2010). Others show that individualism is not significantly related to country's Environmental Sustainability Index (Park et al. 2007) and environmental sustainability (Cox et al. 2011), or that it is negatively related to social responsibility values of top management (Waldman et al. 2006) and corporate propensity to support sustainability (Parboteeah et al. 2012). There is also no agreement as to the role of gender egalitarianism and femininity values in sustainable behavior. While Husted (2005) and Park et al. (2007) show a positive link between femininity and pro-environmentalism, Ho et al. (2012) suggest that it is the masculinity that is positively related to sustainability initiatives and corporate social performance. Also the role of uncertainty avoidance has not been clarified. Ho et al. (2012) suggested that high uncertainty

avoidance has a positive effect on corporate social performance, while others discovered a negative relationship between this cultural dimension and business ethics (Scholtens & Dams, 2007; Vachon, 2010). Other studies concluded that there is no link between uncertainty avoidance and sustainability-oriented ethical business behaviors or capacity for sustainability (Cox et al. 2011; Husted, 2005; Park et al. 2007), and only power distance was identified as a pro-environmental cultural value by Cox et al. (2011).

The research stream on individual pro-environmental consumer behavior has been predominantly mono-cultural and focused on the impact of environmental concerns on pro-environmental behavior. While some studies suggest a positive relationship between these two constructs (e.g., Kilbourne & Pickett, 2008), other scholars disagree, and argue that there is a 'green gap' between environmental concern and pro-environmental behavior (e.g., Tseng 2016). Thus, cultural values might play a role in mitigating this 'green gap.' Culture is unlikely to have a direct influence on behavior, but specific cultural values may affect beliefs and attitudes, which, in turn, influence behavior (McCarty & Shrum, 2001). Therefore, this research stream would benefit from considering the influence of moderators, to address the question of 'when' or 'under what conditions' an outcome variable is influenced by an independent variable (Baron & Kenny, 1986).

As authors arrived at contradictory findings concerning the influence of cultural values on sustainability, and mainly focused on corporate behavior, the current literature offers only limited insights into individual consumers' pro-environmental behaviors and how cultural values influence these behaviors. Therefore, the purpose of this study is to increase our understanding of why cross-cultural differences in sustainability prevail. Five central pro-environmental cultural value orientations are identified and theoretically integrated as moderating variables into the extended theoretical framework of the Theory of Planned Behavior (TPB) (Ajzen, 1991) which captures the underlying attitude-behavioral intention-

behavior relationship. Our conceptualization, i.e. *the pro-environmental behavior model* (figure 2) explains the above-mentioned inconsistent research findings. In our revised framework, cultural values have a moderating effect on relationships within TPB model hence helping strengthen the predictive power of the model and explain differences in pro-environmental behaviors across cultures.

While most cross-national research on this topic focused on the national or organizational level, we increase our understanding of individual consumer behavior. Our *pro-environmental behavior model* links cultural values at the national level to individual pro-environmental value orientations and attitudes, and social pro-environmental norms. The key contribution of this research lies in studying the moderating effect of cultural values (collectivism, future orientation, femininity, and uncertainty avoidance) on pro-environmental consumer behavior. As a result, our conceptualization explains contradictory findings in the current literature, and shows why cultural differences exist. More importantly, we show how cultural values can bridge the 'green gap' between environmental concern and pro-environmental behavior, as well as the gap between behavioral intentions, improving the predictive power of the TPB in the context of pro-environmental behaviors. This paper also bears vast practical implications. The main goal of social agents trying to promote sustainability is formulating communication strategies that will appeal to individual values. As pro-environmental attitudes rooted in values are influenced by cultural values (Dunlap et al., 1983; Rokeach, 1973; Schwartz, 1994), our research highlights how marketers can better target different consumer groups. This paves the way for developing a better understanding of the cultural and social influences of pro-environmental behaviors and sheds light on how to socialize children into pro-environmental values from a young age.

2. Literature Review

2.1. Theory of Planned Behavior

The sustainability research has established that the TPB (Ajzen, 1991) explains a range of pro-environmental consumer behaviors including behavioral intentions to visit green hotels (Chen & Tung, 2014; Han et al. 2010) and restaurants serving organic food (Kim et al., 2013), to consume and buy environmentally-friendly products (Kalafatis et al., 1999; Laureti & Benedetti; Chan & Lau, 2002), conserve energy (Ha & Janda, 2012), recycle (Oreg & Katz-Gerro, 2006), and buy organic personal care products (Kim & Chung, 2011). The TPB identifies attitudes toward behavior, subjective norms, and perceived behavioral control as antecedents to behavioral intentions, which in turn influence the behavior (Ajzen, 2002). The TPB is outlined in Figure 1.

Attitude toward a behavior is the evaluation of this behavior as favorable or unfavorable. Positive evaluation of behavior and its outcomes increase the likelihood of engaging in the behavior (Ajzen 1991). In the context of sustainability, pro-environmental attitudes have been linked to a variety of green behaviors (Soyez, 2012) including green consumption (Iosifidi, 2016; Laureti & Benedetti, 2018), purchases of pro-environmental products (Chang, Zhang, & Xie, 2015; Kumar, Manrai, & Manrai, 2017), as well as conservation and recycling behaviors (Zhao et al. 2014; Cleveland, Kalamas, & LaRoche, 2012).

Subjective norms refer to the perceived social pressure (i.e. norms and opinions of social agents who are essential to the decision-maker) to engage or not engage in the behavior. When one believes that the specific behavior is approved (not approved) by significant others, he/she is going to be more (less) likely to engage in the behavior (Ajzen 1991). In the context of sustainability, social norms and pro-social dispositions are linked to greener consumption and purchasing behavior (e.g. Biswas & Roy 2015; Agovino et al. 2017). Green products can

bear social benefits as they are considered not only socially acceptable (Follows & Jobber 2000), but also are used to "project a good image of oneself to others" (Lee 2008, p. 582), and improve one's status in the reference group (Steg et al. 2014).

Perceived behavioral control relates to the perceived ease or difficulty of the behavior, and involves conviction about one's ability and power to perform this behavior (Ajzen 1991; Ajzen 2005). This construct is related to the locus of control (Ajzen, 2002). In the context of sustainability, related factors such as education or salary levels have been linked to environmental concerns and consumption of environmentally-friendly products (e.g. Aertens et al. 2009). Moreover, perceived ability influences consumer's propensity to consider product labels before making purchases (Kikuchi-Uehara et al. 2016), and inability to pay the premium is an important barrier to the adoption of pro-environmental behaviors (Tseng, 2016).

While the TPB serves well at predicting behavioral intentions, it has been criticized as the behavioral intentions do not always translate into behavior (McKercher & Tse, 2012; Dolnicar et al. 2016). Therefore, in this paper, we explore the possible moderating role of cultural values on the relationship between behavioral intentions and behavior, which were shown to be a key motivation for pro-environmental action (Husted & Allen, 2008; Nguyen et al. 2016; Whitmatsh, 2009).
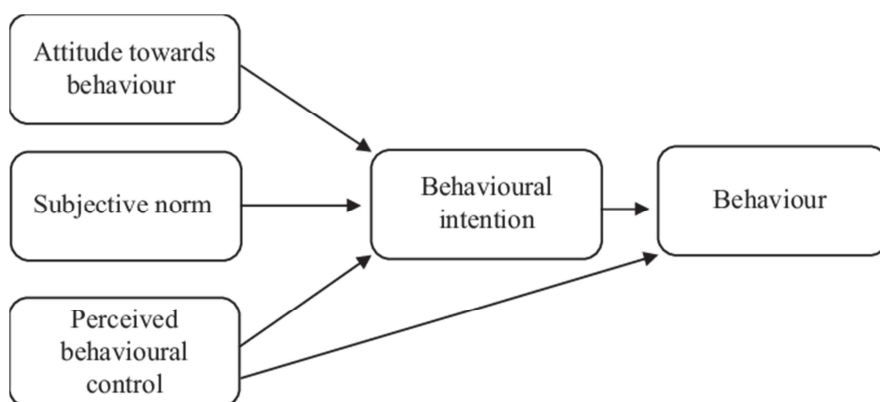

Figure 1. The Theory of Planned Behavior (TPB)

Psychological literature focusing on consumer behavior emphasizes that additional constructs included in the TPB improve its predictive power (Armitage & Conner 2001; Perugini & Bagozzi, 2001). In context of sustainability, these additional constructs involve environmental values and environmental concern (Chan 2001; Laureti & Benedetti, 2018; Liu & Segev, 2017; Peattie, 2010; Segev 2015).

2.2. Environmental Values, and Environmental Concern

Environmental values refer to the perception of one's relationship with nature reflected in recognizing the interdependence between nature and ourselves (Liu & Segev, 2017; Segev 2015). Resulting from the dissonance between what one finds important (environment) and its deteriorating state (Schultz et al. 2005; Segev 2015), environmental values are positively associated with environmental concern (Liu & Segev, 2017), positive attitudes toward green purchase intentions (Chan & Lau 2000), green purchases (Chan, 2001), and green consumption (Fraj & Martinez, 2007), as well as conservation behaviors (Nguyen et al. 2016).

Environmental concern reflects an inclination to protect the environment (Crosby et al. 1981), and can have a direct impact on green consumption (Laureti & Benedetti, 2018). It has been linked to positive attitudes toward green products (Han et al. 2010), green purchase intentions (Lee et al. 2014; Pagiaslis & Krontalis 2014), intentions for green energy consumption (Salmela & Varho, 2006), recycling and conservation (Nguyen et al. 2016), as well as, environmentally friendly purchases (Chan & Lau, 2000; Kalafatis et al. 1999). Individuals with high environmental concern are also more willing to pay extra for the environmentally-friendly product (Pagiaslis & Krontalis, 2014), and limit purchases of environmentally harmful products (Fraj & Martinez, 2007; Liu & Segev, 2017).

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3. Pro-environmental Behavior Model and Research propositions

In the preceding section, we have established the relationships between attitudes, subjective norms, behavioral control, and intentions to act green, and consequently, pro-environmental behavior. The relationships between environmental values and concerns, and attitudes and subjective norms were also established. Mostly mono-cultural research exists in support of these relationships. In what follows, we focus on how different cultural values moderate the above relationships.

3.1. The role of culture in transforming intentions into behaviors

Research shows that ascription of responsibility affects pro-environmental behavior (Hudley, Graham & Taylor 2007; Kua & Wong, 2012), but studies have shown that some people tend to deny or downplay the consequences of their actions on the environment (Juvan & Dolnicar, 2014). Cultural values of individualism/collectivism and long/short-term orientation influence the degree of our ascription of responsibility, and our willingness to make personal sacrifices (Hofstede, 2001), making these two cultural values good candidates for transforming behavioral intentions into behaviors.

3.1.1. Collectivism and individualism

Collectivism is defined as "the degree to which individuals express pride, loyalty, and cohesiveness in their organizations or families" (House et al. 2004, p. 30). Collectivism is reflected in the notion of interdependence. In highly collectivistic societies, social identity is derived from belonging to a community (Triandis, 1989, 1995). As the group loyalty is encouraged, the responsibilities toward the group constitute important behavioral drivers (House et al. 2004). On the other hand, in societies with individualistic orientation, there is acceptance of pursuing individual goals and desires even when it comes at a cost to the community at large (Hofstede, 2001). The social network is the primary source of information in collectivistic cultures (Hofstede, 2001).

This cultural orientation plays a pivotal role in sustainability. Societies with collectivistic orientation focus on the needs of the collective, promote continued existence, and express more concerns about the impact of their actions on society (Hofstede, 2001; Soyez, 2012; Doney et al., 1998). Due to cooperative values, collectivists feel a closer connection to society and the environment (Hofstede 2001) and are more likely to live in harmony with their environment (Schwartz, 1992, 1994). They are thus more likely to exhibit pro-environmental values and positive attitudes toward sustainability (Kim & Choi, 2005; Laroche et al. 2002; Mourali et al. 2005; Liu, Segev 2017; Ng & Burke, 2010). These pre-environmental attitudes also translate into taking action to protect the environment (McCarty & Shrum, 2001; Pinto et al. 2011).

People in collectivistic societies are also more willing to accept a personal sacrifice for sustainability and, e.g., pay higher taxes in support of the environment (Owens & Viders, 2006). On the corporate level, while collectivists are more likely to adhere to business and marketing ethics (Paul et al. 2006; Swaidan 2012), firms in individualistic cultures are less likely to consider the impact on the society when making decisions and thus have lower corporate social responsibility performance (Ringov & Zollo, 2007).

These differences might stem from the ascription of responsibility, which increases pro-environmental behavior (Stern et al. 1999; Stern 2000). People in collectivistic cultures are more willing to ascribe responsibility for their actions (Hofstede 2001) and involve "moral judgment" when making decisions (Husted & Allen, 2008; Nguyen et al. 2016). Morality has been identified as the principal motivation for pro-environmental action (Whitmatsh, 2009; Thogersen, 2009; Barbarossa & De Pelsmacker, 2016; Nguyen et al. 2016; Van de Werff & Steg, 2015). Personal norms, when internalized as moral obligation and feelings of guilt are more important than individual attitudes and pursuits (Gelfand et al. 2004; Onwezen et al. 2013; Triandis 2004). In contrast to collectivistic cultures, individualistic cultures do not

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moralize sustainability efforts (Kreps & Mouin, 2011) as they focus on personal rather than group benefits. Therefore, this cultural dimension might moderate the relationship between behavioral intentions and behavior. Accordingly, based on the conceptual arguments supported by related empirical evidence, we propose:

Proposition 1. In highly collectivistic societies, behavioral intentions exert a stronger effect on green behavior than in highly individualistic societies.

3.1.2. Long-term orientation

Long-term orientation is "the degree to which a collectivity encourages and rewards future-oriented behaviors such as planning and delaying gratification" and is related to the willingness to make sacrifices today for a better tomorrow (House et al. 2004: 282). Long-term orientation influences our behaviors, e.g., saving and conservation behaviors (Ashkanasy et al., 2004; Sagie et al., 1996). On the other hand, people exhibiting short-term orientation expect immediate gratification and are less willing to make sacrifices as they focus more on keeping up with others than on long-term consequences of their actions (Hofstede, 2001; House et al. 2004). They also exhibit more materialistic tendencies that hinder willingness to sacrifice today's gains for future well-being (Kilbourne & Pickett, 2008; Polonsky 2011).

In the context of sustainability, long-term orientation is linked to pro-environmental values (Milfont et al. 2012), pro-environmental intentions (Van Ittersum, 2012), green purchases (Joireman, Van Lange, & Van Vught, 2004), and environmental engagement (Milfont et al. 2012). Long-term orientation also influences the degree to which people believe that their current actions influence the future and weigh in the positive and negative future consequences of their actions when making decisions (House et al., 2004; Strathman et al. 1994). Just like in the collectivistic cultures, long-term orientation is associated with a strong sense of moral obligation, and a sense of shame for not acting in the best interest of the future (Hofstede, 2001). Thus people in cultures with long-term orientation are more willing

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to take an extra step to move from behavioral intentions to actual behavior even when it comes at a higher perceived cost and requires making a sacrifice. Therefore, considering the inherently long-term character of sustainability, we propose:

> Proposition 2. In societies with a long-term orientation, behavioral intention (P2a) and perceived behavioral control (P2b) exert a stronger effect on green behavior than in societies with a short-term orientation.

3.2. The role of cultural values in closing the green gap phenomenon

The literature reports conflicting findings on the link between environmental concern and pro-environmental behaviors. Some researchers found a positive relationship between environmental concern and pro-environmental intentions and behaviors (e.g., Chan and Lau, 2000; Mostafa, 2007; Kilbourne and Pickett, 2008), while others suggest the existence of the green gap, i.e., a situation when environmental concerns, due to perceived costs, do not translate into green behavior (Chang et al. 2006; Chen & Chang, 2012; Li & Cheng 2014; Monroe 2003; Tseng, 2016). The green gap is a significant obstacle to green behavior adoption.

Culture is unlikely to have a direct influence on behavior, but specific cultural values may affect beliefs and attitudes, which, in turn, influence behavior (McCarty & Shrum, 2001). Therefore, as we argue below, cultural values might moderate the relationship between environmental values, concerns, and behavior. As cultural values of femininity/masculinity influence the degree to which people ascribe the responsibility for the effects of their behavior on the environment (Hofstede 2001; Husted 2005), and uncertainty avoidance influences the willingness to take action to protect the environment (Park et al. 2007; Parboteeah et al. 2012), these cultural values might play a role in mitigating the 'green gap' by moderating the relationship between environmental concern and behavior.

3.2.1. Uncertainty Avoidance

Uncertainty avoidance is "the extent to which members of collectives seek orderliness, consistency, structure, formalized procedures, and laws to cover situations in their daily lives" to minimize ambiguity in their lives (House et al. 2004, p. 603). High uncertainty avoiding societies have more strict rules and regulations which aim at minimizing perceived risks and uncertainties (Ho, Wang, & Vitell, 2012).

Empirical evidence suggests that societies with high uncertainty avoidance tend to have higher savings rates as compared to those with low levels of uncertainty (House et al. 2004). Also, on the individual level, those experiencing more uncertainty (e.g., immigrants abroad vs. native workers) have been shown to save more money (Dustmann, 1997) and thus might employ more conservation measures, e.g., energy and water conservation, or product reuse. Risk-taking behaviors that are related to low uncertainty avoidance levels are highly correlated with unethical actions, whereas high uncertainty avoidance levels are linked to more proneness to rule-following and acting ethically when making consumer decisions (Rallapalli et al. 1994). On the organizational level, it has been shown that higher levels of uncertainty avoidance are related to higher corporate social performance and pro-environmental initiatives (Ho, Wang, & Vitell, 2012).

In high uncertainty avoidance cultures, there is more tendency for anxiety regarding the future well-being and thus higher environmental concerns (Hofstede 2001, House et al. 2001). Therefore, researchers suggested that in high uncertainty avoidance cultures, people are more willing to take action to minimize this uncertainty. Thus, research has shown that people in these cultures are more willing to take that next step and engage in initiatives to ensure the sustainability of the environment (Park et al., 2007; Parboteeah, Addae, & Cullen 2012). This suggests that in regards to sustainability, uncertainty avoidance might have a

mitigating effect on the 'green gap' as the uncertainty avoidance values might moderate the relationship between environmental concern and pro-environmental actions:

> Proposition 3. In societies with high uncertainty avoidance orientation, environmental concerns exert a stronger effect on green behavior than in societies with low uncertainty avoidance orientation.

3.2.2. Masculinity and femininity

The next cultural value theoretically related to engaging in pro-environmental behaviors is the masculinity/femininity dimension. Masculinity is manifested in valuing independence, achievement, assertiveness, and material rewards (Doney et al., 1998; Hofstede, 2001). In contrast, femininity is characterized by cooperation, caring for others, focus on quality of life, consensus, service, solidarity, and nurturance (Srite & Karahanna, 2006; Katz et al. 2001).

The beliefs about our relationship with nature are a critical determinant of ecological identity (Light, 2000). Harmony with nature is related to the perceived relationship between humanity and nature and what role people take upon themselves with reference to the environment (Kluckhohn & Strodtbeck, 1961). Schwartz (1992), Dunlap & Van Liere (1978), and Dunlap et al. (2000) describe possible relationships with nature as egalitarian human-nature relationship vs. dominance of humans over nature.

The dominant relationship with nature, associated with masculinity, highlights the right of people to use natural resources and dominate nature as they work toward material success without much consideration for environmental degradation (Chan & Lau 2000; Hofstede, 2001). In masculine cultures economic issues are given priority over sustainability which often comes at the cost of broadly defined quality of life (Katz et al. 2001) and leads to tolerance for pollution or environmental degradation. Empirical evidence confirms that

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masculinity is negatively related to the social and sustainability capacities of nations (Husted, 2005) and linked to lower levels of the Environmental Sustainability Index (Park et al. 2007).

The egalitarian human-nature relationship, which is associated with femininity, emphasizes the need for collaboration with nature and the preservation of the environment. Previous empirical research shows a link between egalitarian nature orientation and environmental concern (Mostafa 2007; Hamid & Cheng 1995), environmental activism (Mostafa 2007; Steels 2007), and positive attitudes toward environmental protection (Kals et al. 1999). On an individual level, women, who generally embrace more feminine values, have been shown to engage in green purchases more willingly (Lee, 2009; Mainieri et al. 1997) and exhibit more pro-environmental attitudes than men. People with egalitarian human-nature orientation consider it their moral obligation and duty to maintain harmony with nature (Schwartz, 1992).

Therefore, feminine cultural values can have a mitigating impact on the 'green gap' as they might moderate the relationship between environmental concern and pro-environmental actions. In societies with feminine orientation, environmental values exert a stronger effect on subjective norms, and environmental concerns exert a stronger effect on attitudes toward green behavior than in societies with masculine orientation. Accordingly, based on the conceptual arguments and related empirical evidence, we advance the following proposition:

> Proposition 4. In societies with feminine orientation, environmental values exert a stronger effect on subjective norms (4a), and environmental concerns exert a stronger effect on attitudes toward green behavior (4b) than in masculine societies.
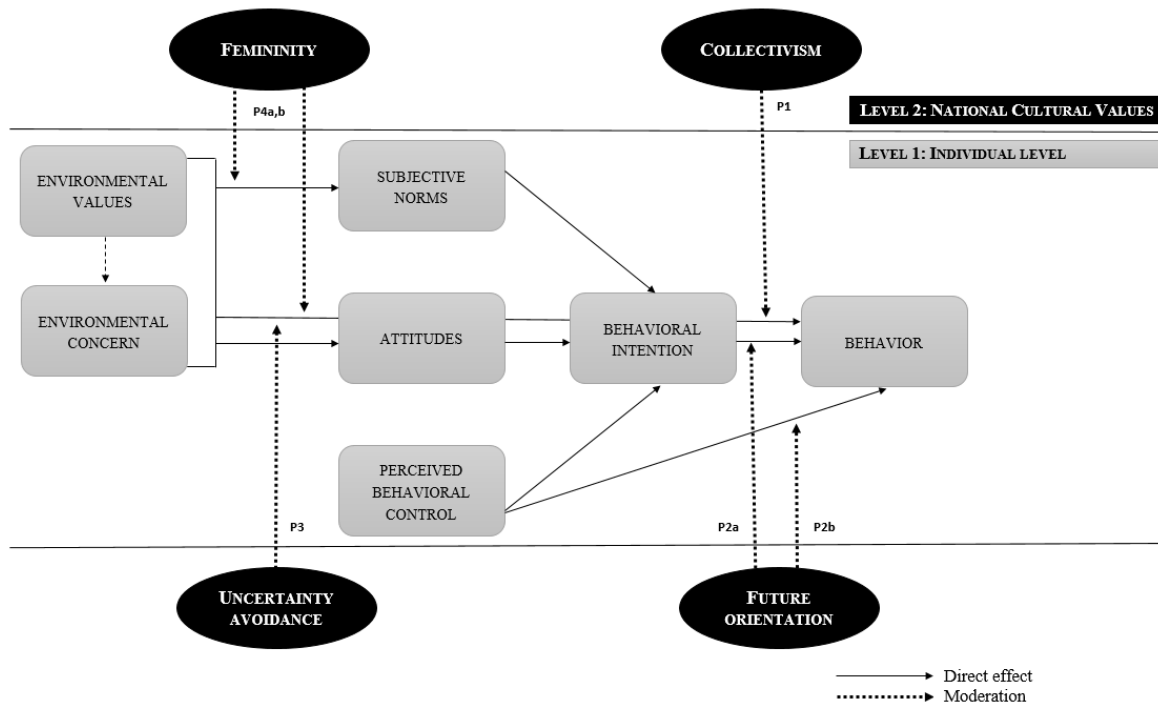
Figure 2. Pro-environmental behavior model

4. Discussion

Culture plays an important role in sustainability because of its impact on consumer beliefs and attitudes (McCarty & Shrum, 2001), however, previous research arrived at contradictory findings concerning the influence of cultural values on sustainability, and mainly focused on corporate behavior, thus falling short of providing a clear picture of how cultural values influence pro-environmental consumer behaviors. To address this void, we present a conceptual *pro-environmental behavior model.* Our model expands the TPB, which captures the underlying attitude-behavioral intention-behavior relationship, by linking cultural values at the national level to individual pro-environmental value orientations, attitudes, and environmental norms. We identify five central pro-environmental cultural value orientations, namely collectivism, long-term orientation, femininity, and uncertainty avoidance, which are theoretically integrated into the TPB framework as moderating variables. The novelty of this research lies in studying the role of cultural values as moderators in the *pro-environmental*

behavior model as we show that cultural values influence the relationship between the antecedents of pro-environmental behavior (environmental concerns and values, attitudes, social norms, the locus of control) and the behavior itself. As previous literature did not provide a clear elaboration of how national cultural values influence pro-environmental behaviors, this study makes two contributions.

First, previous research on sustainability and culture focused mainly on cross-country comparisons (e.g., Jackson & Apostolakau 2010; Lindell & Karagozoghu 2001; Mueller et al. 2007; Rao 2000) and recognized that there is a gap between behavioral intentions and pro-environmental behavior (McKercher & Tse, 2012; Dolnicar et al. 2016). Studies in another research stream that investigated the role of cultural values arrived at contradicting results (e.g., Cox et al. 2011; Husted 2005, Park et al. 2007), which point to that culture does not have a direct but rather indirect effect on pro-environmental behaviors. As pro-environmental attitudes are rooted in values and thus are influenced by national cultural values (Dunlap et al., 1983; Rokeach, 1973; Schwartz, 1994), and the ascription of responsibility for the consequences of our actions on the environment is a cultural phenomenon (Hudley, Graham & Taylor 2007; Kua & Wong, 2012; Juvan & Dolnicar, 2014; Hofstede, 2001), cultural values have a potential to explain this intention-behavior gap. Therefore, we theorize a moderating (rather than direct) role of cultural values of collectivism and future orientation on the relationship between behavioral intentions and behavior. By incorporating these moderating variables, our first contribution lies in strengthening the predictive power of the TPB in the context of pro-environmental behaviors as we address the pro-environmental intentions – behavior gap.

Second, as indicated by previous research, environmental values and concerns do not always translate into green behaviors (Chang et al. 2006; Chen & Chang, 2012; Li & Cheng 2014; Monroe 2003; Tseng, 2016). Researchers have regularly criticized the TPB for

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inadequate deliberation of other behavioral antecedents (Burton, 2004; Arvola et al., 2008; Armitage and Conner, 2001, Yazdanpanah & Forouzani, 2015). Therefore, our second contribution lies in highlighting how cultural values of femininity and uncertainty avoidance, which influence our willingness to take action to protect the environment (Hofstede 2001; Husted 2005; Park et al. 2007; Parboteeah et al. 2012) have the potential to influence the relationship between pro-environmental concerns and behaviors and thus mitigate this 'green gap'.

From the practical perspective, given the importance of cultural values in sustainability and considering cultural differences, we need to tailor the sustainability initiatives to local cultural contexts. Our conceptualization is a stepping-stone in recognizing and capitalizing on cross-cultural differences in promoting pro-environmental behaviors across cultures. The main goal of social agents trying to promote sustainability is formulating communication strategies that will appeal to individual values. The research on cultural influences highlights how marketers can better target different consumer groups. This paves a way of developing an understanding of the cultural and social influences of pro-environmental behaviors. By identifying cultural values that are linked to pro-environmental values, we are better able to recognize the socialization factors (as we learn culture through socialization) that play a role in fostering personal pro-environmental values and norms, which, in environmentally-oriented cultures, are internalized as moral obligations. Utilizing this knowledge can help social agents develop campaigns that would better promote sustainability by promoting cultural values associated with internalized pro-environmental values.

Future research should empirically test the model on consumer groups from different cultural regions in a multinational cross-cultural study. Moreover, considering that the majority of previous studies have been conducted in economically developed countries, future research should also compare countries at different stages of economic development to take

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into account the economic factors that might influence identified relationships. Moreover, the comparison should be made between different pro-environmental behaviors, e.g., recycling, conservation behaviors, and green purchases.

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Declaration of interests

☒ The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

☐The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: