

A META-ANALYTIC REVIEW ON ANTECEDENTS OF GREEN PRODUCT PURCHASE INTENTION: AN EXTENDED TPB APPROACH

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Abstract

Owing to the growing attention of consumers towards green-related issues, important number of studies has been devoted to understanding the drivers of green product purchase intention; implying a need to quantitatively synthesize the empirical body of research on the subject. In this sense, extending the theory of planned behavior, the main purpose of this study is to meta-analyze the empirical findings on green product purchase intention and its antecedents. The meta-analytic investigation was performed on 235 effects dependent upon more than 39,000 consumers ($N = 39,253$). The findings of the meta-analysis reveal that green product purchase intention is most strongly influenced by attitude toward product/brand, followed by brand trust and self-identity, respectively. This research considerably contributes to the pertinent literature by synthesizing and consolidating fragmented empirical evidence on the determinants of green product purchase intention.

Keywords: Green products; Purchase intention; Theory of planned behavior (TPB); Meta-analysis

JEL Classification: M30, M31, M10

YEŞİL ÜRÜN SATIN ALMA NİYETİ ÖNCÜLLERİ ÜZERİNE BİR META- ANALİTİK DERLEME: GENİŞLETİLMİŞ BİR PDT YAKLAŞIMI

Öz

Tüketicilerin çevre ile ilgili konulara karşı ilgisinin büyümesi nedeniyle, önemli sayıda çalışma yeşil ürün satın alma niyetinin belirleyici faktörlerini anlamaya yönelik yapılmıştır; bu durum konu üzerine olan ampirik araştırmaların bütünü sayısal bir şekilde sentezleme ihtiyacını ortaya koymaktadır. Bu anlamda, bu çalışmanın ana amacı, planlanmış davranış teorisini genişleterek, yeşil ürün satın alma niyeti ve öncülleri üzerine olan ampirik bulguların meta analizini yapmaktır. Meta-analitik araştırma 39 000'den fazla tüketiciye dayanan ($N = 39 253$) 235 etki büyüklüğü üzerinde gerçekleştirilmiştir. Meta-analiz bulguları yeşil ürün satın alma niyetinin en güçlü şekilde ürüne/markaya karşı tutumdan, bunu takiben sırasıyla marka güveni ve öz kimlikten etkilendiğini göstermektedir. Bu araştırma, yeşil ürün satın alma niyeti belirleyicileri üzerine olan parçalı ampirik kanıtları sentezleyerek ve birleştirerek ilgili literatüre önemli ölçüde katkı sağlamaktadır.

Anahtar Kelimeler: Yeşil ürünler; Satın alma niyeti; Planlanmış davranış teorisi (PDT); Meta-analiz

JEL Sınıflaması: M30, M31, M10

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1. Introduction

Overconsumption, due to population growth and popular culture which encapsulate the notion of “the more you consume, the happier you become”, causes distress on the sustainability of nature and natural resources. The loss of biodiversity, fresh water and energy scarcity, climate change, and many other social and environmental problems threaten the future of the planet and welfare of humanity. This deep concern about the sustainability of nature and natural resources gives rise to the concept of sustainable consumption which aims to offer a better and higher quality life by saving the environment for future generations (OECD, 2008). Consumers as prominent actors of sustainable consumption play an important role in ensuring sustainable development (Seyfang, 2005). Thus, sustainable consumption studies are very important in terms of stimulating the consumers towards pro-environmental and pro-social behaviors. Therefore, it is crucial to conduct a critical review of literature coupling with a holistic approach in the field.

There is a sizable amount of research regarding the factors that influence green purchase intention. Biases stemming from, e.g., health concern, social norms, brand trust, habits, or values may be indicative in developing the desired behavior (OECD, 2006). However, since the findings reported in the literature are fragmented, generalizability of the findings is limited. Thus, in spite of the limited number, some researchers have put forth considerable effort to come up with more generalizable findings. For example, Scalco et al. (2017) used a meta-analytic structural equation framework and confirmed that Theory of Planned Behavior (TPB) is an adequate model to predict the intention to purchase and consume organic food products. Recent reviews have revealed that environment, health consciousness, knowledge, and taste influence consumer's purchase intentions of organic food significantly (Liobikienė and Bernatoniene, 2017; Rana and Paul, 2017). In the case of green cosmetics, internal, external, and social factors, health consciousness, quality, and brand were found to affect purchasing behavior (Liobikienė and Bernatoniene, 2017). Another meta-analysis conducted by Massey, O'Cass, and Otahal (2018) have concluded that the credence attributes like being healthier and safer for consumption, with higher nutritional value, of better quality, produced with methods better for the environment and animals are important factors underpinning the purchase of organic food.

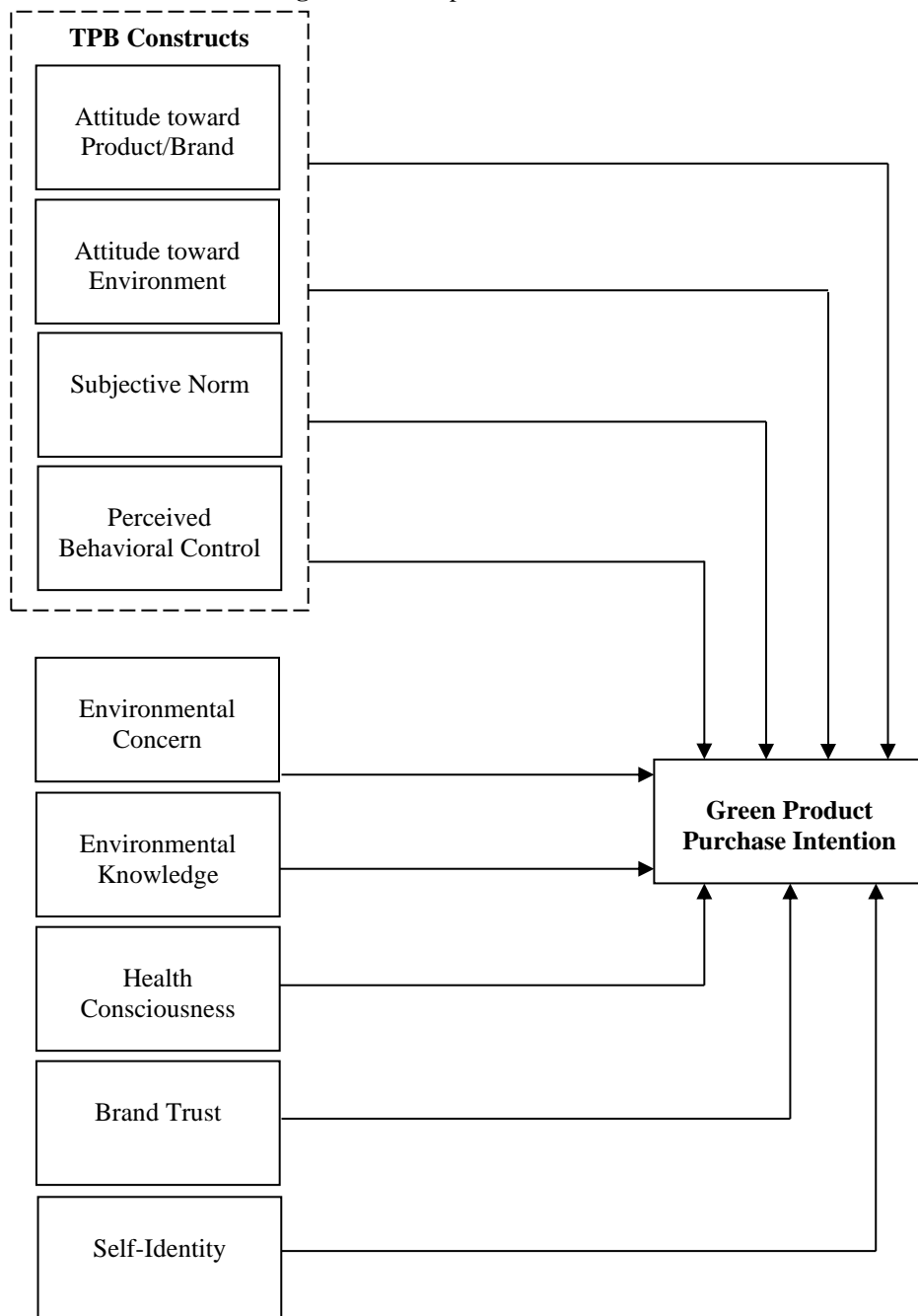
With an aim to provide a holistic approach on the drivers of purchasing intentions of green products in general, this study aims to synthesize the extant empirical knowledge by extending TPB. Building on this purpose, it is believed that this pioneering summative attempt significantly contributes to the literature on green consumer behavior.

2. Theoretical Background and Hypothesis Development

A significant number of studies in the pertinent literature has exploited the TPB which is an extension of Theory of Reasoned Action (TRA). While TRA focuses on the effects of attitudes and subjective norms on behavioral intention (Fishbein and Ajzen, 1975), TPB also embodies perceived behavioral control, which refers to individuals' confidence towards their ability to perform the behavior of interest with ease (Ajzen, 1991). TPB posits that subjective norm, perceived behavioral control, and attitude affect intention, which in turn affects behavior (Ajzen, 1991).

There is strong empirical evidence that the TPB has been successfully verified in the field of ecological and/or pro-environmental behavior (Chen and Deng, 2016; Kim, Lee, and Hur, 2012; Yadav and Pathak, 2016). On the other hand, the theory is extended with the variables specific to the field, like health consciousness (the terms “health concern” and “health consciousness” are generally used interchangeably in the literature) (e.g., Basha and Lal, 2019), brand trust (e.g., Pandey and Khare, 2017; Rashid and Shaharudin, 2017), environmental concern (e.g., Paul, Modi, and Patel, 2016), self-identity (e.g., Arli and Tjiptono, 2017; Sparks and Shepherd, 1992; Whitmarsh and O'Neill, 2010), and environmental knowledge (e.g., Azizan and Suki, 2014; Goh and Balaji, 2016; Mostafa, 2006). The conceptual framework of the research is illustrated in Figure 1. Drawing on this, the hypotheses of this study (i.e., H₁-H₉) are developed.

Figure 1: Conceptual Framework



2.1. Attitude toward Product/Brand

In addition to the role of attitudes toward environment in environmental actions, how consumers evaluate environmentally friendly products/brands has been also recognized as an important concern in order to comprehend the reasons behind the discrepancy between consumers' ideas about environment-related issues and their actual behaviors (Ha and Janda, 2012). In this regard, it has been advocated that consumers' intention to purchase a specific product is probably influenced by beliefs associated with the positive effect of buying the product and the degree of consumers' tendency to act on the basis of these beliefs (Tan, Ooi, and Goh, 2017). Accordingly, consumers holding positive attitudes toward green products/brands are more prone to be engaged in green purchases (Wang et al., 2018).

In the extant literature, interestingly, the body of research on the relationship between attitudes toward product and green product purchase intention has been relatively more intensified on Asian cultures including such nations as India (e.g., Yadav and Pathak, 2017), China (e.g., Chen and Deng, 2016; Wang et al., 2018), Indonesia (e.g., Arli et al., 2018; Farida and Ardyan, 2015), and Malaysia (e.g., Suki, 2016; Tan, Ooi, and Goh, 2017). On the other side, empirical evidence provides strong support for the positive impact of attitudes toward product/brand on purchase intention of green products (e.g., Chen, Chen, and Tung, 2018; Huang, Yang, and Wang, 2014; Mostafa, 2007), covering specifically, energy efficient products (e.g., Akroush et al., 2019; Tan, Ooi, and Goh, 2017), organic foods (e.g., Yadav, 2016), and remanufactured products (e.g., Singhal, Tripathy, and Jena, 2019; Wang et al., 2018), etc. Resting on these studies and the expectation that attitude toward product/brand is of paramount importance in understanding green product purchase intention, the following hypothesis is developed:

H₁: Attitude toward product/brand is positively related to green product purchase intention.

2.2. Attitude toward Environment

Attitude toward the behavior is defined as "the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question" (Ajzen, 1991: 188). Drawing on the main tenets of the TRA (Fishbein and Ajzen, 1975) and TPB (Ajzen, 1985; 1991), attitude has been identified as one of the significant drivers of behavioral intention, with the emphasis placed on the notion that potential behaviors with positive consequences are more likely to be adopted by individuals (Kotchen and Reiling, 2000). In this sense, the established linkage between attitudes and behavior has caused a growing inclination towards examining the impact of attitudes toward environment on environmental behaviors and decisions (Kotchen and Reiling, 2000; Paul, Modi, and Patel, 2016).

In the stream of research on purchase intention of green products, the vast majority of the articles, being conducted in various countries such as South Africa, Egypt, and Canada, concluded that positive attitudes toward environment increase purchase intention of green products (e.g., Issock, Mpinganjira, and Roberts-Lombard, 2018; Mostafa, 2006; Robinot, Ertz, and Durif, 2017), while a few of the studies did not found a significant relationship between these two theoretical constructs (e.g., Afroz et al., 2015; Azizan and Suki, 2017).

More specifically, the favorable association between attitudes toward environment and purchase intention is documented not only in the context of green products in general (e.g., Arli and Tjiptono, 2017; Chekima et al., 2016; Zarei and Maleki, 2018), but also in different product contexts such as energy efficient household appliances (e.g., Nguyen, Lobo, and Greenland, 2017a; Nguyen, Lobo, and Greenland, 2017b), hybrid cars (e.g., Jayaraman et al., 2015), and socially responsible products (e.g., Robinot, Ertz, and Durif, 2017) in particular. Regarding the pertinent literature and our thought that how consumers generate predispositions towards environmental issues significantly affects their intention to purchase green products, it is proposed that:

H₂: Attitude toward environment is positively related to green product purchase intention.

2.3. Subjective Norm

Normative perceptions of people about the others whose opinions they value influence the way they perform the behavior in question (Smith and Paladino, 2010). Thus, social pressure may have an implicit or explicit role of shaping individual's purchasing behavior. Therefore, subjective norm connotes the behavior of purchasing or not, according to the important others' approval (Wang et al., 2019). Ajzen (1991: 188) defines subjective norms as "the perceived social pressure to perform or not to perform the behavior".

Extant literature reveals contradictory findings about the relative importance and the effect of subjective norm on purchase intentions. Vast majority of the studies favor the impact and the importance of subjective norm on purchase intention (e.g., Nguyen, Lobo, and Greenland, 2017b; Paladino and Ng, 2013; Singhal, Tripathy, and Jena, 2019; Smith and Paladino, 2010; Wang et al., 2019), whereas considerable number findings reported are discrepant from these claims (e.g., Chan, 2000; Cialdini and Trost, 1998; Paul, Modi, and Patel, 2016; Schwegker and Cornwell, 1991; Trafimow and Finlay, 1996). Literature also pinpoints that the impact of subjective norm on intention to purchase is mediated by attitudes (Oliver and Bearden, 1985; Smith and Paladino, 2010; Tarkiainen and Sundqvist, 2005). Specifically, within the scope of "green purchase intention", findings reported by the researchers highlight that subjective norm may not be a significant predictor of the intention of green product purchasing (e.g., Kumar, Manrai, and Manrai, 2017; Paul, Modi, and Patel, 2016; Tan, Ooi, and Goh, 2017; Thøgersen and Zhou, 2012; Wang et al., 2018). On the other side, Judge, Warren-Myers and Paladino (2019: 264) assert that green consumer identity moderates the relationship between subjective norm and purchase intention, such that when green consumer identity is high, subjective norms are less important to purchase intentions. We also believe that since together with subjective norm consumers are more willing to conform others' expectations, their inclination to purchase green products is likely to increase. Herewith, it is postulated that:

H₃: Subjective norm is positively related to green product purchase intention.

2.4. Perceived Behavioral Control

Perceived behavioral control is an individual's perception of how easily they can perform a specific behavior (Ajzen, 2002; Paladino and Serena, 2013). It reflects personal beliefs about how easy or hard the adoption of the intended behavior would be. Perceived behavioral control accounts for the situational limitations, and perceived controllability toward performing a behavior, that can affect the relationship between behavioral intentions and actual behaviors (Armitage and Conner, 1999). Research has shown that people's intention and behavior are positively influenced by their self-confidence in their ability to perform a specific behavior (Conner and Abraham, 2001). Findings imply that when an individual holds little control over carrying out a certain behavior because of the lack of availability of required resources, his/her behavioral intention will be lower in spite of the fact that he/she has a positive attitude/subjective norm concerning the intended act. For example, though the motivation to consume sustainable products might be high, it may be impossible to do so because of convenience problems. For example, according to Kalafatis et al. (1999), consumers feel that "green is good" but they believe that a better environment is predicated on actions by others.

Perceived behavioral control is among the most widely tested variables which is deemed to have an impact on green purchase intention (e.g., Mostafa, 2006; Paladino and Serena, 2013; Wang et al., 2018; Yadav and Pathak, 2017; Yoo, Divita, and Kim, 2013). Analyses of the articles have shown that there is a direct and positive relationship between perceived behavioral control and green purchase intention (e.g., Arli et al., 2018; Chaudhary and Bisai, 2018; Hsu, Chang, and Yansritakul, 2017; Jaiswal and Kant, 2018; Yadav and Pathak, 2016). According to our point of view, when consumers perceive that they face little/no difficulties in reaching green products, their tendency to buy these products may be higher. Thus, it is proposed that:

H₄: Perceived behavioral control is positively related to green product purchase intention.

2.5. Environmental Concern

Environmental concern considers to what extent individuals address environmental troubles, devote their efforts to deal with those issues, and want to take part in the solution (Dunlap and Jones, 2002). Individuals' involvement in environmental issues, incorporating climate change, air pollution, waste control, ecosystem preservation, and alternative energy sources, etc., are of great importance, since it signals the degree to which consumers prefer to participate in environmentally concerned behaviors, which in turn, shapes the direction of green-oriented marketing programs (Zimmer, Stafford, and Stafford, 1994). Coupled with its critical relevance in scrutinizing pro-environmental behavior, an increasing scholarly attention has been assigned to the concept of environmental concern in order to examine consumers' environmentally sensitive actions (Albayrak, Aksoy, and Caber, 2013; Shin et al., 2017).

Regarding the link between environmental concern and green product purchase intention, empirical findings are inconclusive in the current research. In this respect, the majority of the articles report that environmentally concerned consumers have more tendencies to purchase green products (e.g., Paul, Modi, and Patel, 2016; Yoo, Divita, and Kim, 2013).

Notably, in comparison with developed countries, the vital role of environmental concern in green product purchase intention is much more evident in developing economies such as India (e.g., Jaiswal and Kant, 2018; Prakash and Pathak, 2017; Yadav, 2016), Malaysia (e.g., Goh and Balaji, 2016; Rashid and Shaharudin, 2017), Turkey (e.g., Konuk, 2018), Brazil (e.g., Junior et al., 2016), and Egypt (e.g., Mostafa, 2006). Nevertheless, considerable number of studies also exists in the extant literature, finding no significant association between environmental concern and purchase intention of green products (e.g., Paladino and Ng, 2013; Smith and Paladino, 2010; Tan, Ooi, and Goh, 2017). Being one of the critical determinants of green product purchase intention, environmental concern is specifically important in comprehending consumer behavior in the context of green products, because it acts as a sign whether a consumer is really involved in environmental issues. Hence, it is posited that

H₅: Environmental concern is positively related to green product purchase intention.

2.6. Environmental Knowledge

Environmental knowledge designates “a general knowledge of facts, concepts, and relationships concerning the natural environment and its major ecosystems” (Fryxell and Lo 2003: 48). Correspondingly, knowledge about the environment shows to what degree people can appreciate major associations yielding to environmental facts, assess the role of community in affecting the ecosystem, and understand obligations required to be performed for sustainable development (Haron, Paim, and Yahay, 2005; Mostafa, 2007). In this way, consumers' environmental knowledge increases their consciousness level in relation to the earth's system of natural resources, which leads to positive attitudes toward environmentally friendly actions, and ultimately, strengthens ecological behavior (Maichum, Parichatnon, and Peng, 2016; Suki, 2013).

In the pertinent literature, the empirical results denoting the effect of environmental knowledge on green product purchase intention were diverse. Whereas it was demonstrated that consumers, who have sufficient knowledge about the natural environment and are aware of the environmental circumstances, are more apt to buy environmentally friendly products (e.g., Azizan and Suki, 2014; Goh and Balaji, 2016; Mostafa, 2006), no significant influence of environmental knowledge on purchase intention of green products was also found by important amount of studies (e.g., Jaiswal and Kant, 2018; Kumar, Manrai, and Manrai, 2017; Zarei and Maleki, 2018), specifically for energy efficient household appliances (e.g., Tan, Ooi, and Goh, 2017), eco-friendly electronic goods (e.g., Paladino and Ng, 2013), and environmentally friendly apparels (e.g., Zheng and Chi, 2013), etc. If a consumer is keen on the environment, then the consumer makes effort to devote his/her resources to gain accumulated knowledge regarding environmental issues, challenges and/or practices, which in turn, positively influences green product purchase intention. Building on the foregoing, the related hypothesis is

H₆: Environmental knowledge is positively related to green product purchase intention.

2.7. Health Consciousness

Health consciousness is defined as “readiness to undertake health actions”, and health concerned consumers tend to buy organic foods as an investment, which depicts the level of individuals’ awareness and concern about their health (Charoenpanich and Vongurai, 2018; Chu, 2018). Previous research exposes that; when compared with conventional food products, organic food products are considered to be healthier and having more nutritional value (Smith and Paladino, 2010).

The literature review reveals a positive relationship between health consciousness and purchase intention of green products (e.g., Di Pietro, Remar, and Parsa, 2016; Jin, Line, and Lee, 2017; Kareklas, Carlson, and Muehling, 2014, Konuk, 2018; Prakasha, Singh, and Yadav, 2018). Most of the studies pinpoint a direct relationship, whereas Teng and Lu (2016) state that this relationship is fully mediated by organic involvement. Furthermore, Pino, Peluso, and Guido (2012) have tested this relationship from two perspectives which are: “regular organic food consumers” and “occasional organic food consumers”. Findings suggest that health consciousness does not influence the intention to buy in terms of regular organic food consumers but for occasional consumers, there is a link between food safety concerns and purchase intention which is fully mediated by attitude toward organic food products. On the other hand, Basha and Lal (2019) in their research undertaken in India did not find a positive relationship between the two constructs. In conclusion, it can be supposed that because green products are generally perceived as healthy, consumers with high health consciousness may be more inclined to buy green products. Hence, the following hypothesis is constructed:

H₇: Health consciousness is positively related to green product purchase intention.

2.8. Brand Trust

Brand trust refers to “the willingness of the average consumer to rely on the ability of the brand to perform its stated function”, which is able to decrease environmental uncertainty that arises from consumers' vulnerable feelings (Chaudhuri and Holbrook, 2001: 82). In a similar vein, in the context of green products, green trust has been described as “a willingness to depend on a product, service, or brand based on the belief or expectation resulting from its credibility, benevolence, and ability about its environmental performance” (Chen, 2009: 309). This implies that when a brand is perceived as an expert and a trustworthy in its field, overall brand credibility can be enhanced, and ultimately, consumers' intention to purchase the green product increases (Issock, Mpinganjira, and Roberts-Lombard, 2018; Rashid and Shaharudin, 2017). Nevertheless, if consumers suspect the environmental performance of a product, then their integrity and bonds with the brand can be damaged (Chen, Lin, and Weng, 2015).

In the related literature, scholars investigating the act of perceived brand trust in green product purchase intention came up with diverse findings. On the one side, for example, it has been largely revealed that the more consumers' trust in brands, the greater their likelihood to purchase organic foods (e.g., Pandey and Khare, 2017), green homes (e.g., Rashid and Shaharudin, 2017), and electric vehicles (e.g., Ng, Law, and Zhang, 2018).

However, no significant association between green trust and purchase intention of environmentally friendly products was also demonstrated (e.g., Basha and Lal, 2019; Brandão, Gadekar, and Cardoso, 2018; Paladino and Ng, 2013), indicating that the degree of a firm's expertise or trustworthiness in green products is not correlated with consumers' purchase intention. In case that a consumer evaluates a brand offering green products as credible in the field, then the consumer may be more leaned towards being interested in green products, and ultimately, to purchase them. Thus, it is hypothesized as:

H₈: Brand trust is positively related to green product purchase intention.

2.9. Self-Identity

The self is discerned as the aggregation of diverse social role identities and self-identity is grounded on the identity theory which aims to enlighten the role related to behaviors of individuals referring to the social nature of the self (Hogg, Terry, and White, 1995; Terry, Hogg and White, 1999). Empirical studies demonstrate that the extension of TRA or TPB with the inclusion of self-identity, indicate significant results (e.g., Shaw, Shiu, and Clarke, 2000) and even boost the predictive power of the models (Cook, Kerr, and Moore, 2002). Regarding “green purchase intention” in particular, the labels like “green consumer” (e.g., Sparks and Shepherd, 1992), “pro-environmental consumer” (e.g., Arli and Tjiptono, 2017; Whitmarsh and O'Neill, 2010) or “ethical consumer” (e.g., Pino, Peluso, and Guido, 2012) that people use to describe themselves, namely, their self-identities are found to have a considerable impact. On the other hand, there is also empirical evidence that personal and social norms mediate the relationship between green identity and purchase intentions toward eco-friendly apparel products (Kim, Lee, and Hur, 2012). Whitmarsh and O'Neill (2010) reported that when compared with a generic self-identity (e.g., pro-environmental), a more specific self-identity (e.g., carbon offsetter) yielded a stronger impact on eco-shopping and eating behavior. Considering the related literature and the idea that consumers are apt to look for brands/products that match with their self-identity, green consumers are possibly choose green products. Therefore, it is hypothesized that:

H₉: Self-identity is positively related to green product purchase intention.

3. Methodology

3.1. Data Collection

Since the determination of eligible studies exerts a big impact on the results of a meta-analytic research, the right inclusion criteria should be specified (Hunter and Schmidt, 2004). Accordingly, four criteria were identified to determine the relevant studies that would be used in the meta-analysis. The selected criteria are: (a) The article has to investigate the drivers of green product purchase intention, either as a main research motivation or as part of a research design, (b) The article has to examine green product purchase intention from consumers' perspective, (c) The article has to be an empirical study by means of primary and/or secondary data and (d) The analyses of the article have to include Pearson's correlation coefficients.

After the determination of inclusion criteria online databases were searched with the keywords "environmentally friendly product", "green product", "ecological product", "eco-friendly product", "eco-product", "sustainable product", and "environmental product" in combination with "purchase intention" on the basis of the study of Sdrolia and Zarotiadis (2019).

The initial screening resulted in 575 studies; however, 492 of these had to be eliminated as 148 of them were out of scope 140 did not report the required statistical numbers for the meta-analysis, 116 were counted more than once and finally 88 of which full-text could not be reached. The final sample incorporates 83 empirical articles from various publication outlets published between 2000 and 2019, indexed in the Social Science Citation Index or in SCOPUS as suggested by Rana and Paul (2017).

3.2. Data Coding

In total, 235 effect sizes were collected from 85 independent samples, which were covered in 83 studies and dependent upon more than 39,000 consumers ($N = 39,253$). All eligible studies were codified by three independent coders on the basis of a codebook, consisting of four different parts: (1) key study characteristics (i.e., author/s, journal, and publication year) and contextual issues (i.e., research setting and context), (2) methodology (i.e., sample size, sampling method, unit of analysis, operationalization of the variables, and data analysis technique), (3) categorization of green product purchase intention's determinant factors, and (4) statistical figures, including reported reliabilities and effect sizes.

3.3. Data Analysis

Before aggregating all empirical findings, measurement error was controlled by computing reliability-corrected correlations (Hunter and Schmidt, 2004). Thereafter, the process continued with the conversion of the reliability-corrected correlations into Fisher's z coefficients, which were transformed back into correlation coefficients in order to interpret the meta-analytic results (e.g., Grinstead, 2008; Kirca, Jayachandran, and Bearden, 2005). The robustness of the meta-analysis was evaluated by publication bias on the basis of the three most frequently applied statistical techniques (Geyskens et al., 2009; Grewal, Puccinelli, and Monroe, 2018): (a) Rosenthal's (1979) 'file drawer' method (the file drawer N number = 3,499); (2) Orwin's (1983) 'failsafe N ' (set to 0.05), and (3) the 'trim-and-fill' method of Duval and Tweedie (2000), all of which demonstrated no evidence of publication bias. Besides, sensitivity analysis was made through 'one study removed' option, proving that the meta-analytic results are not significantly different from those of the previous investigation. Additionally, forest plot analysis further verified the precision of the meta-analysis (Borenstein et al., 2009). In an attempt to base the examination on the right model, heterogeneity test was implemented, showing significant differences in effect sizes across studies (Q -value (234_{df}) = 12681.950 ($p = 0.000$), I -squared = 98.155); hence, the random-effects model was chosen (Cooper, Hedges, and Valentine, 2009).

4. Findings

Comprehensive Meta-Analysis (CMA version 2.2.057) software was performed to test the research hypotheses. According to the findings of the meta-analysis, all proposed hypotheses were supported (Table 1).

Particularly, in line with H_1 and H_2 , it was found that attitude toward product/brand and environment exert a positive influence on green product purchase intention ($r = 0.632$, $CI_{95\%}$ 0.574 to 0.683; $r = 0.422$, $CI_{95\%}$ 0.292 to 0.537). Besides, the meta-analytic results show that subjective norm is positively correlated with green product purchase intention ($r = 0.503$, $CI_{95\%}$ 0.440 to 0.562), which lends support for H_3 .

In harmony with H₄, the findings also prove that perceived behavioral control gives rise to green product purchase intention ($r = 0.481$, CI_{95%} 0.375 to 0.574).

Moreover, in support of H₅ and H₆, environmental concern and knowledge were identified as conducive to green product purchase intention ($r = 0.469$, CI_{95%} 0.347 to 0.576; $r = 0.423$, CI_{95%} 0.344 to 0.497). Also, in concert with H₇, health consciousness is favorably associated with green product purchase intention ($r = 0.328$, CI_{95%} 0.194 to 0.451). In the case of H₈, the results reveal that brand trust has a positive impact on green product purchase intention ($r = 0.582$, CI_{95%} 0.392 to 0.725). Furthermore, the meta-analytic findings unveil that self-identity serves as a precursor of green product purchase intention, supporting H₉ ($r = 0.612$, CI_{95%} 0.493 to 0.709).

Table 1: Summary of the meta-analytic results

| Hypt. | The links | # of effects | Total N | Corrected <i>r</i> | Stand. Error _r | -95% LCL | +95% UCL | Q-statistic |
|----------------|--|--------------|---------|--------------------|---------------------------|----------|----------|-------------|
| H ₁ | Attitude toward product/brand → Green product purchase intention | 52 | 22,487 | 0.632 | 0.029 | 0.574 | 0.683 | 2723.054* |
| H ₂ | Attitude toward environment → Green product purchase intention | 20 | 6,840 | 0.422 | 0.042 | 0.292 | 0.537 | 912.625* |
| H ₃ | Subjective norm → Green product purchase intention | 45 | 19,242 | 0.503 | 0.020 | 0.440 | 0.562 | 1588.642* |
| H ₄ | Perceived behavioral control → Green product purchase intention | 32 | 12,880 | 0.481 | 0.043 | 0.375 | 0.574 | 1794.700* |
| H ₅ | Environmental concern → Green product purchase intention | 29 | 10,048 | 0.469 | 0.055 | 0.347 | 0.576 | 1852.714* |
| H ₆ | Environmental knowledge → Green product purchase intention | 14 | 4,493 | 0.423 | 0.014 | 0.344 | 0.497 | 138.547* |
| H ₇ | Health consciousness → Green product purchase intention | 18 | 6,009 | 0.328 | 0.041 | 0.194 | 0.451 | 697.935* |
| H ₈ | Brand trust → Green product purchase intention | 14 | 5,810 | 0.582 | 0.115 | 0.392 | 0.725 | 1184.025* |
| H ₉ | Self-identity → Green product purchase intention | 11 | 4,429 | 0.612 | 0.042 | 0.493 | 0.709 | 418.948* |

*significant at $p < 0.05$.

5. Discussion, Conclusion, Implications, and Directions for Future Research

Research in the field of sustainable consumption and their reflections in terms of national and/or transnational policies and practices are conceived of beneficial for the society as a whole. It is obvious that both theoretical and empirical sustainable consumption studies pave the way for the sustainable development goals. Considering the future of the world, studies contributing to the operationalization and conceptualization efforts of pro-environmental behaviors are very valuable. This research is one of the pioneering studies with a meta-analytic integration of the empirical findings on the antecedents of green product purchase intention and extends the TPB model by embodying health consciousness, environmental concern, environmental knowledge, brand trust, and self-identity.

The ambiguity in the literature regarding what motivates consumers to purchase green products (without specifying a product/service category) has been addressed in this study by pooling opinions of a large sample of respondents together based on a meta-analytic perspective. Liobikienė and Bernatoniene (2017) claimed that the analysis without distinguishing groups of the products in general can lead to misinterpretations by distorting the results. It is clear that each product group may accommodate some specifications that may lead to different motives for being purchased; however, there is a need to embrace a holistic view in terms of pro-environmental behaviors for the sake of raising awareness, motivation for sustainable consumption, and triggering behavioral change towards a more sustainable world. Considering that the individuals may pursue incompatible pro-environmental behaviors, it is important to understand the driving factors of green product purchase intention in order to ensure the sustainability of the pro-environmental behaviors. Green product purchasing as an important pro-environmental behavior (e.g., De Leeuw et al., 2015; Pinto et al., 2019) must also be approached integrally to facilitate the conceptualization and operationalization efforts of pro-environmental behaviors.

The findings revealed positive impact on green product purchase intention for all variables where the highest impact appertained to attitude toward product/brand with an above moderate effect (Cohen, Manion, and Morrison, 2007). This result is in harmony with the main tenets of TRA and TPB arguing that attitude significantly foresees behavioral intention (Ajzen, 1985; 1991; Fishbein and Ajzen, 1975) and with previous meta-analytic and literature reviews on the related subject concluding that attitude toward product/brand plays a fundamental role in shaping intention to purchase green products (e.g., Liobikienė and Bernatoniene, 2017; Scalco et al., 2017). Self-identity came to the fore as having the second highest above moderate impact. Identity goals represent how the individual wants to see themselves and stimulate the embodiment of self-concept leading to the behaviors compatible with the identity (Pinto et al., 2019). Regulatory fit theory, from the consumption point of view, asserts that when the goal orientation (e.g., promotion, prevention, doing something fun, being pro-environmental) and the goal pursuit are congruent, the value perceptions reflect the purchased product (Mathmann et al., 2019). However, Evans et al. (2013) claim that when the goal of having a financial gain is in question, the green self-identity diminishes in importance over time yielding a threat to pro-environmental behaviors. Therefore, the nature of the goal orientations may have a severe impact on the consistency of the self-identity which in return affects the pro-environmental behaviors. Moreover, brand trust as an antecedent of green product purchase intention requires special attention on the basis of the magnitude of its impact.

This empirical result notably underlines that brands that are perceived as an expert and a trustworthy are more successful at persuading consumers to purchase green products (Issock, Mpinganjira, and Roberts-Lombard, 2018; Rashid and Shaharudin, 2017).

In the current study, subjective norm was also found to have an above moderate impact on green purchase intention. This implies that individuals are likely to be influenced by social norms or peer pressures, and their product choices may become the signal of status or need for approval (e.g., Nguyen, Lobo, and Greenland, 2017b; Paladino and Ng, 2013; Wang et al., 2019).

In terms of the relationship between perceived behavioral control and green product purchase intention, this meta-analytic investigation provides ample support for the theoretical notion that the degree to which an individual perceives that engaging in a behavior is troublesome influences the individual's willingness to perform that behavior (Ajzen, 1985; 1991; Fishbein and Ajzen, 1975), and convenience level or accessibility of green products acts as a critical precursor of green product purchase intention (Liobikienė and Bernatoniene, 2017). In addition, despite a few contradictory findings in the literature, the majority of the articles reported that environmentally concerned consumers have more tendencies to purchase green products (e.g., Paul, Modi, and Patel, 2016; Yoo, Divita, and Kim, 2013), which was also supported in the current study. Another important factor, environmental knowledge, was also found to have a positive impact on green product purchase intention, in spite of the diverse empirical results denoting the differential effect of environmental knowledge on green product purchase intention (e.g., Maichum, Parichatnon, and Peng, 2016; Suki, 2013).

In accordance with the meta-analytic findings and prior empirical evidence on the subject (e.g., Arli and Tjiptono, 2017; Chekima et al., 2016; Zarei and Maleki, 2018), attitude toward environment constitutes another significant determinant of green product purchase intention. This result can be attributed to the suggestion that individuals more tend to adopt behaviors with perceived favorable outcomes, and positive predisposition toward environmental issues cultivates purchase intention of green products (Kotchen and Reiling, 2000; Paul, Modi, and Patel, 2016). Finally, the findings of this research confirmed the positive effect of health consciousness on green purchase intentions; but, the effect is relatively lower than the other variables. This relatively low correlation may stem from a limitation of the study. In the initial screening of the empirical studies phase, "organic food" wasn't involved as a keyword. Considering the high impact of health consciousness on organic food purchase intention (Massey, O'Cass, and Otahal, 2018; Rana and Paul, 2017; 2020), this limitation is thought to affect the magnitude of the correlation between health consciousness and green product purchase intention.

5.1. Managerial Implications

The sustainable development goals are built to overcome social, economic, and environmental problems and to sustain the wellbeing of the future generations. It is the responsibility of governments, businesses NGOs, and all citizens to work towards the accomplishment of these goals. Sustainable consumption to combat environmental problems should be motivated by policy makers and businesses. In this sense, the findings of the study offer valuable insights for managers to better understand the determinants of green purchasing behavior. The meta-analytic results can be an important guide for managers to design their communication and promotion strategies in order to motivate consumers for more sustainable consumption.

Specifically, since the findings of the study reflect the importance of environmental knowledge and concern on green product consumption; a suggestion for marketing managers that sell environmentally-friendly products would be that, they try to inform publics about the environmental issues and their outcomes as a part of their corporate social responsibility activities. Their only consideration should not be to create awareness of their brands but at the same time they should be working to create awareness of the environmental issues. This effort would be also influential on establishing positive attitudes toward environmental issues which is the first and foremost determinant of green product purchase intention.

Moreover, an important barrier to purchasing of green products might be that people have doubts about these products as to whether they are actually being green or not. Thus, at this point the concept of brand trust becomes critical. As a general rule when people have limited information and expertise related to a product (green product), they use brand as heuristics and a reference point to evaluate that product. In line with the findings of the study, companies that maintain trusted brands are more likely to be preferred by consumers among other green product alternatives.

5.2. Public Policy Implications

When the case is related to environmental problems, public policy makers have also huge responsibilities. In this respect, in accordance with the findings of the study, environmental knowledge and concern are important antecedents to green product consumption; and thus, governments', government agencies', and public policy makers' most critical responsibility starts with the education of the society both within the education system starting from kinder garden and through supportive programs in coordination with life-long learning. Besides, in this education it is essential to demonstrate to people that they can make actually a big difference with a small precaution they make. Furthermore, public policy makers need to push and encourage companies by well-developed rules, regulations, and incentives in order to be more environmentally responsible.

5.3. Limitations and Further Research

Future research should extend this meta-analytic investigation by integrating different goal orientations and situational factors as well. Besides, the current study didn't consider the moderating or mediating effects of the variables; thus, it is also recommended to perform a meta-analytic structural equation framework to contribute more to the operationalization efforts of green purchasing. It is also suggested to extend the keywords to specific green product groups as well.

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