PORTUGUESE MILLENNIALS AND GREEN BUYING BEHAVIORAL INTENTIONS: AN APPLICATION OF THE THEORY OF PLANNED BEHAVIOR

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Resumo

O tópico da sustentabilidade tem ganho uma grande relevância nos dias de hoje, forçando uma mudança de paradigma no mercado. Os consumidores exigem cada vez mais a comercialização de produtos e serviços verdes e para satisfazer estas exigências, as empresas têm que mudar a sua estratégia, apostando em estratégias de Marketing verde.

Os *millennials* são a geração mais instruída devido à ligação com o resto do mundo via Internet, levando-os a ser líderes deste movimento verde. A sua heterogeneidade dificulta o objetivo das empresas de satisfazer as expectativas dos consumidores, tornando-se crucial entender quais as suas motivações para exercer um comportamento de compra.

Foi criado um modelo para estudar os determinantes de intenção de comportamento (teoria do comportamento planeado) com base em três variáveis: atitude, norma subjetiva e controlo percecionado. Contudo, este modelo apresenta oportunidades de melhoria considerando que este não analisa experiência nem identidade.

Este projeto visa acrescentar valor nesta área através do estudo sobre os principais determinantes na intenção de compra verde dos *millennials* Portugueses.

Para efetuar este estudo foi necessário recolher dados quantitativos através de um questionário, tendo estes sido analisados através de equações estruturais. Os resultados identificaram a norma subjetiva, a disponibilidade de pagamento, a identidade verde e a experiência passada, como determinantes da intenção de comportamento de compra verde. A atitude relevou-se como não sendo um determinante, não impactando diretamente a intenção de comportamento de compra verde.

Palavras-chave: Marketing verde, *millennials*, teoria do comportamento planeado, motivações, intenção de comportamento de compra.

Abstract

The awareness towards the topic of sustainability has grown, forcing a shift in the market. Consumers are now increasingly demanding for green products and services and to fulfill it, companies need to change their strategies and focus on green marketing.

Millennials are the most informed social group due to the constant connectivity via Internet to the outer world and due to that, they are the leaders of this green movement. Their heterogeneity difficult the goal of companies of meeting their customers' expectations and therefore, it is crucial to acknowledge which are their motivations to develop a purchase intention.

A framework to study the determinants of a behavioral intention (Theory of Planned Behavior) was created based on three predictors: attitude, subjective norm and perceived behavioral control. However, this framework has opportunities of improvement since it does not consider experiences of an individual nor his identity.

This research aims to fulfill this gap and analyze which are the most relevant determinants of behavior intention within the Portuguese millennials.

Quantitative data was collected through a survey and that information was analyzed through PLS structural equation modeling. The results identify subjective norm, willingness to pay, green self-identity and past experience, as determinants of buying behavioral intention within the Portuguese millennials, meanwhile attitude does not impact it directly.

Keywords: green marketing, millennials, theory of planned behavior, motivation, buying behavioral intention

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1. Introduction

Sustainability has been a hot topic and it is here to stay. The trends concerning sustainability and environment are guiding companies to build new mindsets and working towards an eco-friendlier activity (Han, Hsu and Lee, 2009).

The consumers are more aware of the environmental issues and expect businesses to provide solutions that safeguard and minimize the ecological impact, by being environmentally responsible (Statista, 2018a). And not only do consumers expect it, as they search proactively for brands that deliver this (Statista, 2018a).

As a result, companies are working towards a more sustainable business. For about 80% of companies worldwide already have energy and sustainability projects to pursue in the next two years (Statista, 2018b). Many of these projects target energy efficiency upgrades, data collection, water and waste reduction and renewable energy and demand response (Statista, 2018b). This requires a business reorganization affecting the whole manufacturing and operations processes and offer adaptation (D'Souza and Taghian, 2005). One example would be the automotive industry that is currently facing the challenges growing from the increasing gasoline prices and level of pollution in urban areas. To solve this issue, they are adapting their offer according to the demand, and from 2013 to 2016 the biofuels world market is expected to increase from 100.76 billion U.S. dollars to 132.67 billion (Statista, 2018c).

The demand for sustainable/green products is real, both in the present and in the future. In the present stage, the organic retail sales value in Europe has grown from 19.5 billion euros in 2010, to 33.5 billion in 2016 (Statista, 2018d). Also, the revenue regarding the fair-trade products worldwide has more than doubled in the same period (4.3 billion euros in 2010 to 7.9 billion in 2016) (Statista, 2018e). Considering the future, the prospections are also of growth. From 2015 to 2020 is expected that the market value of ethically labeled packaged food, soft drinks and hot drinks worldwide will increase from 793.8 billion U.S. dollars to 872.7 billion. This represents an increase of 10% of market value in five years and a great opportunity for food and beverage businesses (Statista, 2018f).

This phenomenon created a new way of placing products in the market, called Green Marketing. The nuances of this new marketing strategy affect offer adaption, packaging alteration and eco-targeted communication (Narula and Desore, 2016). It relies on developing

and marketing products and services that do not harm the environment throughout the production process, while not compromising the quality of the output (American Marketing Association, 2013). The competitive advantage from these products takes foundation not only on their performance, but also, based on the environmental impact. This means that commercial strategy uses claims related to environmental consciousness to engage with customers and potential buyers (United Nations Environment Program, 2005).

The millennial group is said to be the most environmentally aware (Vermillion and Peart, 2010; Sheahan, 2005). Also, they are considered as loyal to themselves and their social groups – family, friends and communities – rather than to companies (Hira, 2007). They pay little attention to the brands but instead they want to find products and services that resemble with their beliefs and way of living (Caplan, 2005). In addition, they often rely on the opinion of peers, both in person but also through social network (Littman, 2008).

This commitment towards the fulfillment of their needs and of their loved ones, results in a higher demand for quality and deeper frustration when these are not fully satisfied, likely resulting in exposing this negative experience in an online community (McMillian, 2014). This also happens because the millennials purchasing process is emotive, with the goal of pursuing fun, experiences and feelings (Holbrook and Hirschman, 2012).

Considering that millennials are one of the most sustainability driven social group, it is important to understand their motivations when purchasing eco-friendly products. The importance given to them and their environmentally conscious purchases has been residual until the present (Smith, 2011) and therefore, there is little knowledge towards what motivates them (Noble, Haytko and Phillips, 2009).

Since Green Marketing is a growing trend, it is important to study more closely what are the reasons to support environmental issues. This knowledge will allow adapting the existing business orientation to a more effective one.

Firstly, it is crucial to define the target and subsequently to understand what drives them to take certain actions – in this case, why they would enroll in green purchasing. Since there is little information towards Millennials' motivations regarding eco-friendly buying behavior and they are considered as a big market opportunity, it is relevant to enlarge the knowledge towards this issue.

The research focused on sustainable segmentation and purchase motivation in Portugal is limited and this information is valuable to escalate businesses.

Thus, the objective of this study is to understand what are the motivations behind Portuguese millennials' green purchasing intentions. To proceed with this research, the following question is proposed: "What are the main determinants of Portuguese millennials' green purchasing intentions?".

The present study will be structured in the following manner:

- Introduction, where there is an introduction of the problematic, the objectives of the study, the research gap and research question;
- Literature Review, exposing all the relevant topics regarding this research by presenting previous studies that have been conducted. These will be the foundation of this study, providing all the information needed to fulfill the goal of the study. To what it concerns this research, it provides valuable insights regarding the predictors of behavioral intention and studies in the green marketing field;
- Methodology, explaining all the steps conducted from the data collection to the analysis of the results;
- Results, presenting all the statistical data and analysis, validating the reliability of the model and which were the determinants that are most significant for the topic;
- Conclusions and Theoretical and Managerial Implications, explaining what are the implications of the results previously presented;
- Limitations, stating what should be improved for future studies in this field.

2. Literature Review

2.1. Green Marketing

2.1.1. Green Marketing concept

The American Marketing Association (American Marketing Association, 2013) defines green marketing as marketing products or services assumed to be environmental safe.

Alsmadi (2007) reinforces this definition by stating that the environmental claiming should be the foundation of all the structures of the company and not only the product/service. For Chen and Chang (2012) and Dahlstrom (2011), green marketing activities include the product characteristics, pricing, promotions and placement – known as the traditional marketing-mix variables. In addition, the green activities must be present in every part of the production process, according to Peattie (2001), not only reducing the environmental impact, but also minimizing the negative social impact. Only through that, by taking in consideration the consumers' opinions, is that businesses are going to satisfy the customer needs for green products without harming the environment.

Green Marketing is believed to be one of the most relevant trends of modern business (Kassaye, 2001). This movement began around the 1960's and has evolved from the topics of pollution and waste to an integrated vision of the environmental concept to all of the production process (Straughan and Roberts, 1999).

Since companies are always seeking for the best opportunities to become more competitive, more firms are becoming more aware of environmental sustainability (Chang, 2011). They believe that by associating environmental issues with their brand, they are building stronger equity and more sustainable competitive advantages, reinforcing their position within their market (Montoro-Rios, Luque-Martínez, Rodríguez-Molina, 2008; Phau and Ong, 2007). In addition of obtaining competitive advantage, Chen (2010) completes this rational with four more reasons for a company to go green: environmental pressure, improving corporate images, seeking new markets or opportunities and enhancing product value.

This new mindset leads companies to redefine their strategies: 82% of those are increasing the budget towards Green Marketing campaigns and opportunities, both due to the belief that it builds competitive advantages, but also because they believe that in the future it will be a key

success factor, since most competitors are adopting it (Tillinghast, 2010). This budget can only be useful if there is an optimization of resources and according to Ottman (1998), firms will only be successful by applying green marketing strategies, if the concept is integrated in every aspect of the business – not only the marketing activities, but also the collection of raw resources, to the manufacturing, business and corporate ethics.

2.1.2. Opportunities of going environmental

Media coverage of environmental disasters and conflicts helped raising awareness towards environmental issues worldwide, especially among consumers (Qader and Zainuddin, 2011; Chen, 2007).

People try to fight this situation highlighting that society should be green. This is usually used interchangeably with several words, such as sustainability and environmentally friendly (Peattie, 1995).

According to Eurobarometer Report (2014: 6), most "Europeans state that protecting the environment is important to them personally" in which "85% of people believe they can play a role in protecting the environment", 97% of the Portuguese participants are personally concerned about protecting the environment, 2p.p. above the EU28 average. Also, 86% believe that can play a role in protect the environment, presenting a growth of 7 p.p. since 2011, 1p.p. above the European mean. This is a remarkable number and is beneficial for green brands since it presents a bigger market opportunity (Eurobarometer Report, 2014).

Most Europeans believe they are not fully aware of the impact on health of chemicals used in everyday products, and 43% are worried about its impact due to consumption of everyday products. Also, only one quarter of the participants of the survey felt that big companies and industries were protecting the environment. By adopting a Green Marketing strategy, those companies can be pioneers in the mind of the consumers regarding environmental protection (Eurobarometer Report, 2014).

62% of the Portuguese are willing to buy environmentally friendly products even if they cost slightly more, presenting a 3p.p. growth since 2011. However, only 9% bought environmentally friendly products marketed with an eco-label. This is a significantly lower

number than the EU28 average in which 75% are willing to do it and 21% do it regularly (Eurobarometer Report, 2014).

Therefore, the marketplace is prepared to an immersion in a greener shift and businesses are seeking ways to fulfill those needs and responding to the demand (Banerjee, Iyer and Kashyap, 2003).

Even though there is a clear opportunity by turning a product/service/organization green, there is evidence that this opportunity is not being carried out properly. Wong, Turner and Stoneman (1996) posit the mismatch of the growth of awareness towards environmentally friendly products and the lack of success of these products.

2.2. Segmentation and Green Segmentation

2.2.1. Market Segmentation

Market segmentation is an important step that will help defining the target, being crucial to the definition of a brand/organization marketing strategy (Smith, 1956).

The evolution of the society led to more consumer diversity, more heterogeneous demand and a deeper need of defining what to offer and whom to target (Martin, 2011). Therefore, segmentation is splitting a group in smaller homogeneous groups that present similarities (Danneels, 1996; Smith, 1956) and can be segmented by consumer needs, characteristics or even behaviors (Kotler, Haider and Rein, 1993). However, it is not always easy to define the segmentation criteria since "many segments cannot be detected in the market place in its original form" (Paço and Raposo, 2008: 366).

The correct market segmentation will provide powerful insights that will lead to the understanding of the consumer and, as a result, to the optimization of the marketing efforts and expenses (Dibb, Stern and Wensley, 2002).

2.2.2. Green Segmentation Studies

Trying to understand how certain segments behave becomes crucial to be more successful when targeting an audience. By studying how social groups respond to green issues, it will be easier to adapt the company strategies towards their needs.

Lee (2009) wanted to understand if there were gender differences towards the adolescent consumer's green purchasing behavior in Hong Kong. He found that females have a stronger environmental attitude, environmental concern, perceived seriousness of environmental problems, perceived environmental responsibility, peer influence and green purchasing behavior whereas males presented higher green self-identity. The top two predictors of green purchase were peer influence and environmental concern for both men and women.

Bucic, Harris and Arli (2012) studied the ethical consumers among the Australian and Indonesian Millennial generation. They found that the professional/academic status is not a predictor to ethically conscious purchase and that women are more willing to be sustainable than men in both cultures. Another relevant insight is that around one third of the respondents stated that they would enroll at least every month on buying green/sustainable products.

Regarding the Portuguese market, Paço and Raposo (2009) tried to profile the several segments of consumers. They found that demographic variables were important to segment the market. Unlike Lee (2009), they found that "gender" was not a relevant predictor towards green consumption.

According to them, there are three segments:

1. "The uncommitted" that were the ones that are younger (18 to 34 years old), highly educated and presenting a large awareness regarding the issue but do not act green;
2. "The green activists" with age ranges from 25-34 and 45-54 years old, the most highly educated and their intentions to being green match their actions the most;
3. "The undefined" are the older group, with lower levels of education, lower incomes and lower knowledge regarding sustainability/green issues.

The researchers claim, "these consumers, despite their support for policies designed to improve the environment, do not translate their concerns into actions" (Paço and Raposo, 2009: 375).

In another study, Paço and Raposo (2008) aimed to determine the characteristics to profile the green Portuguese consumer with ages over 18 years old. The determinants that resulted from the study were the following: "environmentally friendly buying behavior", "environmental activism", "environmental knowledge", "environmental concern", "recycling", "perceived consumer effectiveness", "resource saving", "economic factor" and "skepticism towards environmental claims". They found that consumers are presenting an environmentally friendly buying behavior and that there is the propensity of becoming more aware and concern regarding their purchases. Also, it is stated that the willingness to pay is related to the demographical profile and socio-economical determinants.

2.3. Green Products and Green Consumer

The increasing awareness towards environmentalist issues led to the creation of the "green" concept leading to a new type of product and to a new type of consumer.

"Green products" are the ones that do not harm the environment – those can also be called as environmentally friendly products or eco-friendly products (Peattie, 1995). To be considered "green", the chemical components must be harmless, and the packaging must be recyclable (Alsmadi, 2007). Peattie (1995) also states that "green products" are also the ones that do not harm the society. This concern during the overall process from the manufacturing moment until the market placement leads to an increase of the price of the product (Chang, 2011).

The so-called "green consumer" is the type of consumer who purchases green products instead of regular ones (Paladino, 2005) because they are concerned about its characteristics and the way it impacts the environment (Leonidou, Leonidou and Kvasova, 2010). These characteristics often rely on recyclability, origin and chemical modifications. Partly, the awareness towards this issue has been growing due to coverage of media (Peattie, 1992).

Many researchers have been trying to frame these consumers and get to conclusions regarding its characteristics, but it has been inconclusive, since studies are presenting many heterogeneous outputs (Peattie, 2001).

2.4. Green Purchasing Gap

The growing awareness regarding green issues is not always translated into actions, existing an intention-behavior gap – the so-called green purchasing gap (Carrington, Neville and Whitwell, 2014). According to Gatersleben, Steg and Vlek (2002), unlike the expected, green consumers do not use less energy than those who are not as environmentally friendly.

The uncertainty evolving around green consumerism results in a smaller production due to the low projections for the demand of green products and therefore, impacts the availability of green products (Chandon, Morwitz and Reinartz, 2005).

Several studies intend to examine the motivations of environmentally conscious consumer towards green behavior (Gleim, Smith, Andrews and Cronin, 2013; Cherrier, 2012). There were found to be several explanations regarding the barriers to green consumption: economic rationalization (Eckhardt, Belk and Devinney, 2010), lack of availability, small product range, high prices (Carrington *et al.*, 2014; Gleim *et al.*, 2013), difficulty in identifying the green products (Picket-Baker and Ozaki, 2008) and difficulty in understanding the value proposition (D'Souza, Taghian, Lamb and Peretiatkos, 2006; Pedersen and Neergaard, 2006). The high prices and the economic rationalization influence the type of consumers that can afford these products, meaning that green consumers are usually from wealthier social groups (Balderjahn, 1988). Also, the social norm might work as a barrier to transform an intention to an action, since an individual is enclosed to a social group and guides himself through beliefs that are intrinsic to its reality (Jackson, 2005). As a result, an important factor is also the social segment in which the individual belongs to.

To improve business strategies, it is crucial to understand how to fulfill this gap (Carrington, Neville and Whitwell, 2010; Bagozzi, 1993).

2.5. Generation Millennial

In the end of the twentieth century a new generation was born – the millennial generation, also called Generation Y (Lu, Bock and Joseph, 2013). These are young consumers born from 1982 and 2005 (Howe and Strauss, 2007). As stated Gurău (2012), there is not consensus concerning these dates, varying this period in other millennial generation's definition: 1980-1995 (Edelman/StrategyOne, 2010), 1981-1995 (Lafayette, 2011), 1982-1994 (Kavounis, 2008), 1982-2000 (Rich, 2008), 1982-2002 (Littman, 2008) and 1980-2000 (Richard K. Miller and Associates, 2011). For this specific study, the time interval considered is 1982-2005, meaning that these individuals are between 13 and 36 years old.

As Gurău (2012: 103) stated "Generation theorists postulate that changes in the macro-environment influence the profile of people born in a specific period, imprinting a specific and common purchasing and consumption behavior (Howe and Strauss, 2000)". As a result, the millennial generation presents different motivations and behaves differently from previous generation – Generation X (Gurău, 2012).

The millennials are said to be diverse, open minded, educated and technologically shrewd (Hood, 2012) since they were the first generation to grow in an international dependent reality and global engagement context (Pendergast, 2007). This easiness in getting and sharing worldwide information, in real time (Howe and Strauss 2000), at the tip of their fingers – either through television, internet or other technologic devices (Gorman, Nelson and Glassman, 2004) – evolved to a newer and more conscious vision towards the world and its reality, leading millennials to be more receptive to ethical issues (Smith, 2011), valuing multiculturalism (Zemke, Rained and Filipczak, 2000) and feeling comfortable in expressing themselves (Tapscott, 1998).

However, this is not directly correlated to being more environmentally conscious. There are several points of view regarding the millennial generation and their environmental responsibility. On one hand, some criticize that millennials are more concern about their own stability and convenience rather than the wellness of the environment, believing also that they should not change their habits to help the environment (Head, 2013). On the other hand there are studies that claim that this generation is the most environmentally conscious (Vermillion and Peart, 2010) and that consumers that have higher levels of education are more concerned about the long-term effects of products on their health, community, and environment, deciding

to act more sustainable (Spehar, 2006) and leaning themselves to choosing brands that are environmentally-friendly (BrandAmplitude, 2009).

Focusing the marketing efforts and strategy towards the Generation Y represented a $54,3 billion opportunity for marketers in 2010 (McKay, 2010). This opportunity has certainly increased since the millennial group grew from 2,28 billion people in 2010 to 2,34 billion people in 2015 (United Nations, 2015). Impacting this generation becomes even more crucial since they have a major influence in family purchase decisions and on the peers' decision making – resulting on large indirect economic impact (Morton, 2002; Taylor and Cosenza, 2002). This peer pressure is significant in the Western society since it is found to be one of the most impactful factors when it comes to green purchase behavior of adults (Lee, 2011).

Regarding the consumption habits, the millennial generation is considered as the most consumption oriented (Sullivan and Heitmeyer, 2008). They want products that reflect their identity and way of living (Caplan, 2005), while also considering price and product features - giving little importance to the brands themselves (Phillips, 2007). Due to having easy access to information and goods, millennials have higher product expectations and are more likely to share an experience that does not meet their expectations (McMillian, 2014). It can even lead to loss of trust and benefaction regarding the product/brand (Parris, 2010). To avoid this type feedback and potentiate a long-term relationship with this consumer group it is crucial for brands and companies to be authentic, to stand for integrity and transparency on their offer and benefits (Edelman/StrategyOne, 2010).

These reasons enhance the importance of studying more in-depth how these consumers behave and is critical for the long-term success of most companies. However, this is a difficult task since many researchers outline that Millennials should not be considered as a homogeneous group (Foscht, Schloffer, Maloles and Chia, 2009; Manpower, 2007) and that millennials' values and motivations towards environmental and social responsibility issues diverge in different cultures (Hanson-Rasmussen and Lauver, 2018).

2.6. Theory of Planned Behavior

Understanding the consumer behavior is a hard task due to its heterogeneity and therefore, throughout the decades, several explanatory theories have been designed, aiming to finally ease the process (Kalafatis, Pollard, East and Tsogas, 1999). On an early stage, these studies were developed to fulfill the needs of areas like sociology and economics, but with the new society we are facing, that is more demanding and demands a more refined communication, many of these studies have been developed to help the Marketing professionals decrypting the most efficient ways to engage and uphold a relation with their target (Ehrenberg and Goodhardt, 1979).

Most theories, however, present boundaries – most of those provide understanding of the reasons why, per example, one brand is chosen over another, but cannot explain if this preference was translated into buying decisions (Kalafatis *et al.*, 1999).

To analyze the green behavior arising from self-interest behavior, researchers often rely on rational choice models. These were referred as expectancy-value models and are analyzed in terms of their level of abstraction and the relation between the beliefs and perceptions that produced an attitude (Bagozzi, 1985). Throughout the decades, these models have been the foundation of new and more up-to-date models. The original consumer expectancy-value behavior model (Fishbein, 1963) provided a relevant theoretical link between evaluative criteria and the concept of attitude (Kalafatis *et al.*, 1999). From this first model evolved the Theory of Reasoned Action (TRA) (Ajzen and Fishbein, 1980) and afterwards the Theory of Planned Behavior (Ajzen, 1991; Ajzen, 1985).

The Theory of Reasoned Action was developed and tested considering that choices were being made consciously. This theory sets that the behavior takes foundation on the behavioral intentions, meaning that there is a direct correlation between the likelihood of acting and the action itself (Madden, Ellen and Ajzen, 1992).

The behavioral intention results from the junction of attitude and subjective norm. In this context, attitude is the individual's overall sensation of favorableness or unfavorableness for that behavior (Ajzen and Fishbein, 1980). The subjective norm is the perception that the individual has regarding the opinion of his closest social circle concerning what he should or should not do (Ajzen and Fishbein, 1980). This results in the model presented in the Figure 1.

Figure 1 – Theory of Reasoned Action (Ajzen and Fishbein, 1980)

Although this model had a strong predictive value it was only relevant if the study was under volitional control (Sheppard, Hartwick and Warshaw *et al.,* 1988). The limitations of this theory were that there are several factors, other than intention, that influence the behavior; and, in this model was not included the perception about the capability of performing or nor performing the action (Sheppard *et al.*, 1988).

For this reason, it was developed an extension to the TRA - The Theory of Planned Behavior (TPB) (Ajzen, 1991; Ajzen, 1985). This one is truly relevant for several areas of studies and topics because it explains the behavior and the purchase decisions from consumers (Han and Hansen, 2012).

The foundation of this study is, such as in the TRA, that the anticipated satisfaction with a product is directly linked to the belief of the functionality of a product to fulfill a certain need. (Kalafatis *et al.*, 1999) This means that individuals make rational use of the available information when taking behavioral decisions (Conner and Armitage, 1998). The TPB overcome the limitation of the full volitional control that was not fulfilled by the TRA, by including the beliefs regarding the individual's capability of performing an action (Madden *et al.*, 1992).

Human behavior is commanded by distinct subjective probabilities (Fishbein and Ajzen, 1975), meaning that several types of beliefs might influence an action. According to these authors, (i) beliefs regarding the impact of our actions, (ii) beliefs concerning the normative expectations of other people and (iii) beliefs about the impact of external factors on a certain performance can somehow predict the execution of a task (Sommer, 2011). These beliefs can result in different behavioral reactions and can impact positively or negatively the (i) attitude toward behavior, (ii) subjective norm and (iii) the perceived behavioral control (Ajzen, 2002):

i. Attitude – The positive or negative perception regarding executing a certain action (Cheng, Lam and Hsu, 2006);

ii. Subjective norm – The positive or negative perception regarding the opinion of their peers on taking a certain action;

iii. Perceived behavioral control – The positive or negative perception regarding the capability of being successful enrolling in a certain action.

The combination of these beliefs influences directly the behavioral intention (Ajzen, 1985). However, is it also true that there are other variables that impact the intention and availability of acting (Ajzen, 1991), e.g. financial resources and time to perform (Ajzen, 1985). Those factors discussed by Ajzen (1985) result in the real control towards an action.
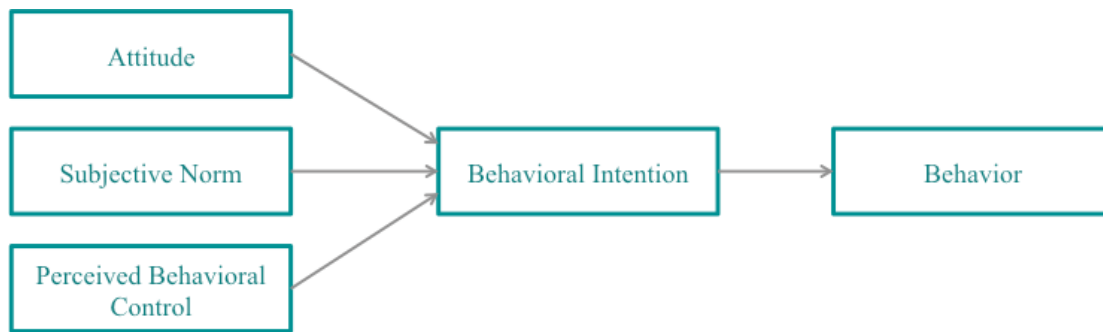
Figure 2 – Theory of Planned Behavior (Ajzen, 1985, 1991)

This theory was proven to have strong predictive power when considering its three main constructs, and therefore, to be a reliable source of evaluation of intention versus action (Cheung, Chan and Wong, 1999). This validation was done through several studies, within several areas of studies and topics, e.g. use of condoms (Chan & Fishbein; 1993); smoking cessation (Droomers, Schrijvers and Mackenbach, 2004), blood donation (Holdershaw, Gendall and Wright, 2011) and breakfast consumption (Mullan, Wong, Kothe and MacCann, 2013). Considering the topic of sustainability, as stated by Oliveira-Brochado, Oliveira-Brochado and Caldeira (2015), the TPB has been used to predict and explain pro-environmental behaviors.

2.7. Research Model and Hypothesis

2.7.1. Research Context and Objectives

There have been previous studies regarding green segmentation and psychological determinants of the green consumer in Portugal. This study, however, will evaluate this topic in the millennial generation.

To develop tailor made and more accurate green brand strategies, there must be a strong knowledge regarding the target group. The millennials are a heterogeneous generation and to increase the engagement, first there is the need of understanding what matters to them and how green they are. To analyze the relationship between green consumer behavior and purchase intention – that will help to segment the target – it will be used the Theory of Planned Behavior (TPB) (Ajzen, 1985).

2.7.2. Theoretical Framework

Ajzen (1991) states that the Theory of Planned Behavior is developed in a way that other constructs can be added. Many scholars have included new constructs or adapted the ones in the TPB (Wang and Wang, 2016; Araújo and Loureiro, 2014; Chu and Chiu, 2003; Cheung *et al.*, 1999).

2.7.3. Model Constructs and Hypothesis

Attitude

Attitude to behavior is one of the main constructs of the TRA and TPB (Ajzen and Fishbein, 1980) and a strong predictor regarding behavioral intentions (Kwun, 2011). It is defined as the positive or negative perception regarding the executing a certain action (Cheng *et al.*, 2006; Ajzen and Fishbein, 2000). Ajzen and Fishbein (1980) propose that considerations that are not immediate to the individual are not likely to be a predictor to behavior.

Moser (2015) studied the impact of attitude towards protection of environment to affect positively green purchasing behavior. Although she expected it to be positive, she did not

expect it to be the strongest predictor (based in the previous study on organic personal care products of Kim and Chung (2011)). Her findings stated that attitude did not have a significant impact on green buying behavioral intention.

However, other studies shown that it has indeed a positive impact on buying intention. Michaelidou and Hassan (2008) studied the impact of attitude towards organic food purchasing and the results were that it affected positively the purchase intention. Cheung *et al.* (1999) reexamined the theory of planned behavior applying it to the issue of wastepaper recycling and attitude and found it to be a significant predictor of behavior intention.

H1 - There is a positive relation between attitude and green buying behavioral intention;

Subjective Norm

Subjective norm refers to the perception and peer pressure that social groups put over an individual complying an action (Zhan and He, 2011; Ajzen, 1991).

Since this construct is referred to a variable that cannot be controlled, there is a pressure that results from what is expected in society because of formal and informal social norms as guidelines for behavior (Bamberg and Möser, 2007; Kalafatis *et al*., 1999).

Chan *et al.,* (2008) proved that the elements that had a stronger impact in adolescents having healthy diets were their families. On another scope, Oskamp, Cameron, Lipsey, Mindick and Weissbach (1991) found that having a recycling behavior was more likely if the individual had friends who had recycling habits.

Cheung *et al*., (1999) found that the subjective norm influenced positively the wastepaper recycling behavior intention. Chan and Lau (2002) found that subjective norm impacts positively green purchasing behavior intention on the Chinese population.

H2 - There is a positive relation between subjective norm and green buying behavioral intention;

Willingness to Pay

According to Ajzen (2002), the concept of perceived behavioral control (PBC) accounts situations in which an individual does not have complete control of their behavior. The PBC in the TPB stands for the perception of the capability in taking an action, however there are non-motivational factors that can present constraints to perform (Ajzen, 2002).

Scholars tend to approach this variable by doing nonspecific statements about the capability of performance (Kim and Chung, 2011). It is important to name the variables to achieve a more accurate output from the research (Ajzen, 2002). Followed by availability and usage convenience, financial availability is a deal breaker when considering green purchases and one of the most relevant variables regarding this topic (Mai and Hoffmann, 2012).

Green products are perceived as an upscale of regular products, and as a result, more expensive (Aslihan-Nasir and Karakaya, 2014). Some studies show that price it is not a barrier to green purchase (Gupta and Ogden, 2009; D'Souza, Taghian and Khosla, 2007; Auger, Burke, Devinney and Louviere, 2003; Oyewole, 2001) because consumers that are environmental aware are less price sensitive (Olson, 2013; Tanner and Wölfing Kast, 2003) and available to commit to higher prices if the quality of the green products is not affected (Loureiro, McCluskey and Mittelhammer, 2002; Laroche, Bergeron and Barbaro-Forleo, 2001). In other studies, the higher prices present an obstacle to the green product purchase (Ginsberg and Bloom, 2004; Prakash, 2002; Peattie, 2001). Also, there are studies that found that emerging countries are willing to pay more for green products rather than developed countries (Longsworth, 2011).

Therefore, when considering green purchase behavior, the willingness to pay higher prices becomes the most relevant PBC topic and in this model, will be considered as one of the behavior intention predictor.

Moser (2015) used the variable willingness to pay (WTP) as a predictor of buying behavior in the German market. From all the variables, the WTF was considered the strongest predictor, which meant that a higher WTP for green products had a positive impact on green buying behavior.

H3 - There is a positive relationship between willingness to pay and green buying behavioral intention;

Green Self-Identity

Campbell (1990) defines self-concept as the cognitive organization of memories about the individual and Grubb and Grathwohl (1967: 24) posit that self-identity is "how the individual perceives himself". Theories regarding identity claim that the definition of the identity, results from cataloguing behavior trends. Therefore, the identity of a person is the reflex of their beliefs (Stets and Burke, 2000), social status and values (Belk, 1988).

As Lee (2009) stated in her study, ruling the lifestyle according to environmental norms can be one attribute of identity and Stets and Biga (2003) proved that self-identity positively influenced green behavior. Mannetti, Pierro and Livi (2004) later proved that individuals that self-identified themselves as green improved the intentions to recycle. Sparks, Shepherd and Frewer (1995) proved that green self-identified consumers have a smaller attitude-behavior gap comparing to those who do not consider themselves as green, when buying organic food.

The variable of self-identity as an explanatory variable of behavioral intention is more relevant in adolescents (Sharp, Coatsworth, Darling, Cumsille and Ranieri, 2007) because they are still building their identity and character on something they believe it is meaningful (Coatsworth, Sharp, Palen, Darling, Cumsille and Marta, 2005).

Michaelidou and Hassan (2008) studied the predictors towards the intention of purchasing organic food and they found that green self-identity impacted positively the purchasing intention. Regarding the antecedents of purchasing eco-friendly products while comparing green and non-green consumers, Barbarossa and Pelsmacker (2016) concluded that green self-identity influenced positively the purchase intention on both consumer types.

H4 - There is a positive relation between green self-identity and green buying behavioral intention;

Past Experience

The past experience has been studied as a variable that impacts buying behavior intention and buying behavior (Chen and Chang, 2012; Ajzen, 1985; Ajzen and Fishbein, 1980) and been proven to be one of the strongest predictors of future behavior (Oulette & Wood, 1998). According to Boldero (1995), recycling behavior is related with repetitiveness in nature and therefore may be considered a habit, leading to a bigger pretentiousness to perform actions related to that issue. Therefore, this variable should be incorporated to improve the predicting power of the theory of planned behavior since it impacts both intention and behavior itself (Cheung *et al*., 1999). It has been used regarding brand experience (Schmitt, 2009), electronic purchase (Klein, 1998), online purchasing (Shim, Eastlick, Lotz and Warrington, 2001), use of condoms (Kashima, Gallois and McCamish, 1993) and organic personal care products (Kim and Chung, 2011).

Kim and Chung (2011) found that the past experience with other organic products influenced positively the purchase intention. Also, D'Souza *et al*. (2006) aimed to understand the role of green products in the strategy of corporations and the output was that past experience influenced positively the perception of green products. Khara and Varshneya (2017) studied the antecedents of organic cotton clothing purchase behavior in the Indian market and they found that green past behavior influenced positively the green apparel purchase behavior.

H5 - There is a positive relation between past experiences and green buying behavioral intention;

Behavioral Intention

Behavioral intention is defined as the probability of employing a certain behavior (Oliver, 1997) and that intentions do not always lead to an action (Grunert and Juhl, 1995).

It has been studied has the predictor of behavior (Ajzen, 1991) and according to Ajzen and Fishbein (2000), when the intentions to behave are high, the likelihood of behaving gets higher. This relation has been proven by several scholars (e.g. fair-trade products (Shaw, Shiu and Clarke, 2000) and organic production (Annunziata, Ianuario and Pascale, 2011)).

Cheung *et al*. (1999) confirmed the predicting power of behavior intention to pursue the behavior itself when issuing about wastepaper recycling. Chan and Lau (2002) found that behavior intention impacts positively the intention of behavior towards green purchasing on the Chinese population.

H6 - There is a positive relationship between green buying behavioral intention and green buying behavior.
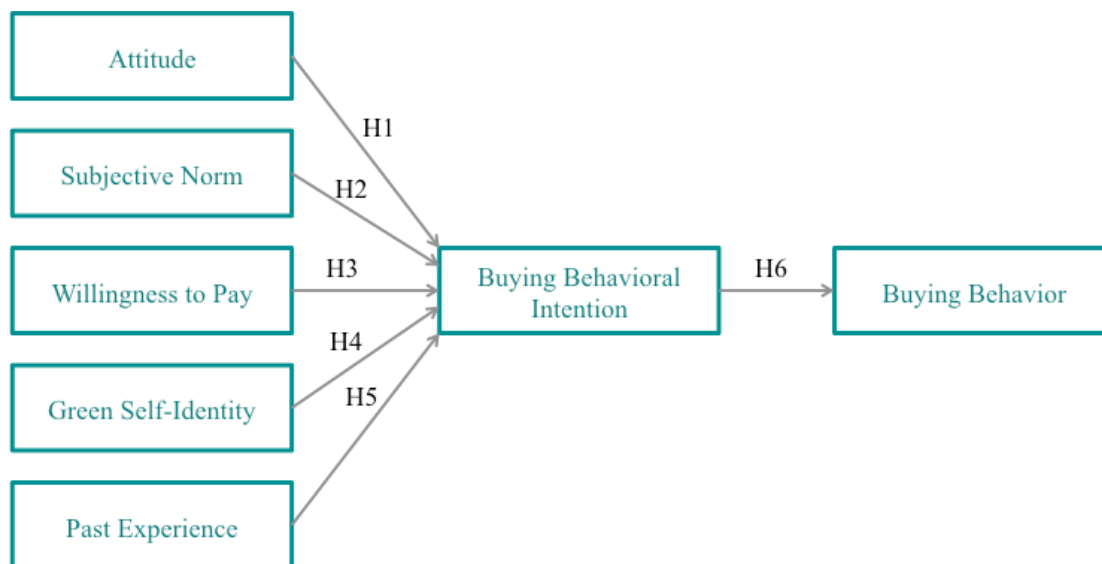
2.7.4. Model Development

Figure 3 - Conceptual framework for the study

Adaption of the Theory of Planned Behavior (Ajzen, 1991; Ajzen, 1985)

3. Methodology

3.1. Data Collection

There are various research approaches when developing a study: explanatory, descriptive and causal research (Shields and Rangarajan, 2013). To fulfill the needs of the current research, it will be conducted a causal research approach since all the variables in-study have cause-effect relationship between them.

Also, this study demands for quantitative data that will be collected through a quantitative analysis on a self-administered survey, through convenience sampling. This type of data and way of collection is efficient and reliable since the target population will respond to the same basis of evidence (Saunders, Lewis and Thornhill, 2009).

The planning of a study is crucial to understand from whom we need information from – it is called the target population (Malhatroa and Birks, 2006).

The research is focused on understanding the predictors for green buying behavior for the Portuguese millennial generation, meaning the target of this survey are Portuguese millennials.

The survey was developed on Qualtrics Research Platform and was elaborated in Portuguese, since the study targets the Portuguese population.

The data was collected online, via social media platforms and messaging applications, but also offline, through direct approach.

The social media approach was on Facebook, by sharing the survey in groups related to environment and in social groups of Portuguese universities, and through LinkedIn by posting it in the researchers own page. Platforms like Facebook and LinkedIn play a large roll when gathering data because they are rising, and it is easy to target large audiences. LinkedIn per example has almost doubled the number of members from 2013 to 2016, from 259 million users in 2013 to 467 million users in 2016 (Statista, 2018g). Also, the number of daily active Facebook users worldwide has continuously growing over the years, from 936 million users in 2015 to 1471 million users in 2018.

Regarding the messaging platforms, the used ones were Messenger from Facebook and WhatsApp. At last, to achieve a more diverse target, there was a direct approach in universities to college students.

3.2. Constructs and Items

To develop the survey and to reach an optimal output on the research, it is necessary to define the items that support the previous stated constructs. Every item is based on previous studies, in order to warrant reliability and validity.

Since this study is targeting the Portuguese population, the items were translated to Portuguese (Attachment 1).

The survey (Attachment 2) is divided in two parts: (i) environmental dimension and (ii) demographic data. The environmental dimension results from the appropriation of predictors presented in the theoretical framework: attitude, subjective norm, willingness to pay, green self-identity, past experience, buying behavioral intention and buying behavior.

Attitude

The attitude towards the protection of the environment was previously studied and measured by Moser (2015). The first two items of this construct are based on the items of Moser (2015) regarding the drivers of pro-environmental purchasing behavior. Also, the items ATT3, ATT4 and ATT5 are based on the study of Lee (2009) whom have studied the differences in Hong Kong adolescent consumers' green purchasing behavior. The items from both Lee (2009) and Moser (2015) studies were scored in reverse and recoded so that high values would represent high environmental attitude.

Every item in both studies was scored a 5-point Likert scale (1=strongly disagree; 5= strongly agree). To provide more detailed information regarding the level of agreement, for the following study, it will be used a 7-point Likert scale measure.

ATT1 - Nowadays. There is too much fuss about the protection of the environment (Moser, 2015)

ATT2 - Enough is done nowadays for the protection of the environment (Moser, 2015)

ATT3 - Environmental protection works are simply a waste of money and resources (Lee, 2009)

ATT4 - Environmental protection issues are none of my business (Lee, 2009)

ATT5 - I think environmental protection is meaningless (Lee, 2009)

Subjective Norm

Lee (2009) also studied the effect of subjective norm on green purchasing behavior. The following five items were created to understand the impact of social context in environmental protection. The five items used a 5-point Likert scale (1=never to 5=always). To provide more insightful outputs concerning the level of agreement, for the following study, it will be used a 7-point Likert scale measure. The original scale ranged according frequency, but to fulfill the purposes of this research, it will be adapted to the level of agreement. This will allow having coherence along every construct.

SN1 - My friends often discuss environmental issues/products with me (Lee, 2009)

SN2 - My friends often recommend environment-friendly products to me (Lee, 2009)

SN3 - My friends often go shopping for green products with me (Lee, 2009)

SN4 - My friends often share their experiences and knowledge about green products with me (Lee, 2009)

Willingness to Pay

Moser (2015) also studied the willingness as a predictor of green buying behavior. The following three items are concerning the payment of a bigger amount of money to purchase green products, in different categories. The items were scored on a 5-point Likert scale (1=strongly disagree; 5= strongly agree). To provide more detailed information regarding the level of agreement, for the following study, it will be used a 7-point Likert scale measure.

WTP1 - I am willing to pay more for regional products (Moser, 2015)

WTP2 - I am willing to pay more for environmentally friendly packaging (Moser, 2015)

WTP3 - I am willing to pay more for environmentally friendly cleansing agents or detergents (Moser, 2015)

Green Self-Identity

Both Moser (2015) and Lee (2009) assessed if Green Self-Identity was a predictor of green purchasing behavior. The first three items were based on Moser (2015) study that represents pro-environmental beliefs. Lee (2009) studied the self-identity on how pursuing an environmental behavior impacts the individual.

Every item in both studies was scored a 5-point Likert scale (1=strongly disagree; 5= strongly agree). To provide more detailed information regarding the level of agreement, for the following study, it will be used a 7-point Likert scale measure.

GSI1 - I prefer to buy/eat meat from species-appropriate husbandry (organic farming) (Moser, 2015);

GSI2 - I prefer to buy regional products due to shorter transport distances (Moser, 2015);

GSI3 - I prefer to buy groceries which are produced according to fair trade standards (Fairtrade/Transfair) (Moser, 2015);

GSI4 - Supporting environmental protection makes me feel that I'm an environmentally-responsible person (Lee, 2009);

GSI5 - I feel proud of being a green person (Lee, 2009);

GSI6 - Supporting environmental protection makes me feel meaningful (Lee, 2009).

Past Experience

Pickett-Baker and Ozaki (2008) studies the predictors on pro-environmental product purchase decision process. The items are towards actions that were already performed, meaning that they are past experiences. Every item was measured on a 4-point Liker scale, ranging from 1=never, 2=sometimes, 3=frequently and 4=always. To pursue more detailed information, for this study it will be used a 7-point Likert scale.

PE1 - I use biodegradable soaps or detergents (Pickett-Baker and Ozaki, 2008);

PE2 - I avoid buying aerosol products (Pickett-Baker and Ozaki, 2008);

PE3 - I buy products in packages that can be refilled (Pickett-Baker and Ozaki, 2008);

PE4 - I recycle bottles, cans or glass (Pickett-Baker and Ozaki, 2008);

PE5 - I take my own bags to the market (Pickett-Baker and Ozaki, 2008);

PE6 - I try to cut down on car use (Pickett-Baker and Ozaki, 2008);

PE7 - I contribute money to environmental causes (Pickett-Baker and Ozaki, 2008);

PE8 - I am a volunteer for an environmental group (Pickett-Baker and Ozaki, 2008);

Buying Behavioral Intention

Lin (2007) studied the predictors of consumer intentions to shop online. One of the analyzed constructs was the behavioral intention. Kim and Chung (2011) used the constructs from Lin (2007) while studying the behavioral intention of consumer purchase intention for organic personal care products and adapted his items to fulfill the needs of their study (e.g. "I plan to use *online shopping* again" to "I plan to use *green products* again"). The items BBI1, BBI2 and BBI3 were measured using a 7-point Likert scale, ranging from 1=strongly disagree to 7=strongly agree. This measurement scale was also used on this research.

Oliveira-Brochado *et al.* (2015) studied the psychological determinants of the green consumer and Yamoah, Duffy, Petrovici and Fearne (2016) studied the fair-trade purchase intention in supermarkets, and both proposed the item of studying the intention of buying green products in a period of three months and four weeks, respectively. These items were scored on a 5-point Likert Scale. To fulfill the purpose of this study and provide coherence along the items, these items were adapted to a 7-point Likert scale measure.

BBI1 - I plan to use green products again. (Adaptation of Lin, 2007);
BBI2 - I intend to buy green products within the next 30 days (adaptation of Lin, 2007);
BBI3 - I will strongly recommend green product purchase to others. (Adaptation of Lin, 2007);

How likely are you to use/buy the following products in the next four weeks? (Yamoah *et al.*, 2016; Oliveira-Brochado *et al.*, 2015)

BBI4 - Fair Trade Coffee (Yamoah *et al.*, 2016);
BBI5 - Led Light Bulbs (Oliveira-Brochado *et al.*, 2015);
BBI6 - Recycled packaging products (Oliveira-Brochado *et al.*, 2015);
BBI7 - Recycled Paper (Oliveira-Brochado *et al.*, 2015);
BBI8 - Biodegradable products (Oliveira-Brochado *et al.*, 2015);

Buying Behavior

Moser (2015) and Lee (2009) assessed the impact of certain predictors on buying behavior. The first two items were based on Moser (2015) green buying behavior in the context of daily

consumer goods. Lee (2009) studied the difference between adolescent's genders regarding green purchasing behavior.

Every item in both studies was scored a 5-point Likert scale (1=strongly disagree; 5= strongly agree). To provide more detailed information regarding the level of agreement, for the following study, it will be used a 7-point Likert scale measure.

BB1 - I inform myself which groceries are environmentally polluted and don't buy them any longer (Moser, 2015);

BB2 - I more frequently deliberately buy products which have a lower environmental impact (Moser, 2015);

BB3 - I often buy organic products (Lee, 2009);

BB4 - I often buy products that are labeled as environmentally-safe (Lee, 2009);

BB5 - I often buy products that are against animal-testing (Lee, 2009);

BB6 - I often buy products that contain no or fewer chemical ingredients (Lee, 2009).

The second part intends to study the demographic characteristics of the sample: gender (male, female), age (from 13 to 36 years old), residence area (from every district in Portugal), marital status (single, married, divorced, widow, other), number of children (from 0 to >3), academic qualifications (basic school, high school, bachelor degree, master degree, doctorate degree, other), professional status (student, worker, student worker, unemployed, other) and household income (<500€, 500€ - 999€, 1000€ - 1499€, 1500€ - 1999€, 2000€ - 2499€, ≥2500€) .

3.3. Pre-test of the Survey

Before launching the survey, tests were done to correct any possible inefficiency that might exist (Malhatroa and Birks, 2006). Considering that the questionnaire was in Portuguese, some concepts could had get lost in translation and these pre-tests allowed to rephrase some statements and add extra information that would help the respondents when filling the survey. The answers from this period were not considered in the final sample.

3.4. Data Analysis

After closing the survey, it is time to start the analysis. However, even though pre-tests had been previously conducted, there was still a chance of having data that would not be relevant to the study. Therefore, a screen must be performed, to understand the validity of the data and trial the information.

To perform that screening, the data from the survey responses was exported to the platform IBM SPSS version 25. There, the variables were coded according to their specifications and the ones that required it, were adapted and reversed. Also, the invalid answers were deleted due to two reasons: (i) the respondents did not answer to all the survey; (ii) the respondents do not fit the target, meaning they are <13 years old or that they are >36 years old.

Prior to rearranging the database, still in SPSS, it was performed an analysis to better understand the socio-demographic characteristics. Also, it was extracted a frequency analysis per each item of the survey.

Afterwards, the model was tested and estimated by means of PLS structural equation modeling (Hair, Hult, Ringle and Sarstedt, 2016). To do so, the database used in SPSS was imported to the software SmartPLS. The software is used to analyze the validity and quality of the model in two different stages. The first part is regarding the measurement model that studies the validity of the model. The second stage is the one regarding the structural models, from which conclusions of the model can be assessed.

When in the first phase of the measurement model, it will be conducted an analysis of composite internal consistency reliability, indicator reliability, convergent validity and discriminant validity.

Following, for the structural model, it will be studied the collinearity issues, the significance and relevance of the structural model relationships, the R^2 and the goodness of fit of the model.

4. Results

The results section will first present a brief explanation of the sample profile and will be followed by the results of the PLS platform structure equation modeling (SEM) – measurement model, structural model and findings regarding the green behavior predictors. At first, the sample profile data was extracted from Qualtrics and analyzed through SPSS and Smart PLS.

From a total of 530 answers and after being performed a first analysis of the results, 73 of responses were considered as invalid due to not completion of the survey, and other 12 answers due to unfulfillment of the age requirement. As a result, the valid responses were downsized to 445 answers. This final number represents the sample that is going to be analyzed further ahead.

4.1. Sample Profile

The sample quantifies 445 respondents in which 294 are females (66.1%), 149 are males (33.5%) and two of the respondents do not consider themselves as neither female nor male. Regarding the age, both mode and round up average are 23 years old - the mode is 23 years old which weights 22.2% out of the total sample and the average is 22.75 years old.

Considering the residency area, most respondents live in Lisbon (75.1%) and the second most significant area is Setúbal (7.9%). Most of them are single (93.7%) and do not have children (96.0%)

When observing the academic background and professional status, most of the respondents have concluded some level of Higher Education (70.6%) and are currently studying (52.4%), working (30.6%) or both (13.5%).

At last, the most common household income is from 1000€-1499€ (26.1%), followed by both 1500€-1999€ and >2500 (18.4% each), 500€-999€ (17.3%), 2000€-2499€ (15.3%) and <500€ (4.5%).

Table 1 – Demographic Statistics

Variable	Categories	Count	Column N %
Gender	Female	294	66.1%
	Male	149	33.5%
	Other	2	0.4%
Age	≤ 25	373	83.8%
	26 – 36	72	16.2%
Area of Residence	Lisboa	334	75.1%
	Setúbal	35	7.9%
	Others	76	17.1%
Marital Status	Single	417	93.7%
	Others	28	6.3%
Number of Children	0	427	96.0%
	1	12	2.7%
	2	5	1.1%
	3	1	0.2%
	> 3	0	0.0%
Concluded Academic Qualifications	Basic School	29	6.5%
	High School	99	22.2%
	Bachelor Degree	206	46.3%
	Master Degree	107	24.0%
	Doctorate Degree	1	0.2%
	Other	3	0.7%
Professional Status	Student	233	52.4%
	Worker	136	30.6%
	Student Worker	60	13.5%
	Unemployed	10	2.2%
	Other	6	1.3%
Household Income	< 500€	20	4.5%
	500€ - 999€	77	17.3%
	1000€ - 1499€	116	26.1%
	1500€ - 1999€	82	18.4%
	2000€ - 2499€	68	15.3%
	> 2500€	82	18.4%

4.2. Measurement Model

The model that was initially presented was estimated by means of PLS structural equation modeling (Hair *et al.*, 2016).

Since the model has variables that are correlated and are interchangeable, it demands for a reflective measurement scale, creating the need of studying the reliability and validity of the model (Hair *et al.*, 2016).

The assessment of the measurement model should be done through the analysis of composite internal consistency reliability, indicator reliability, convergent validity and discriminant validity.

In a first analysis, considering every variable from the survey, some failed to pass the threshold of 0.7 for composed reliability and therefore the variables AT1R, AT2R, GSI1, GSI2, PE5, PE6, PE7, BBI4, BBI5, BBI6, BBI7 and BBI8 were deleted, based on their loadings. From a total of 39 items, the final model kept 27 items.

To check the indicator reliability, firstly "Outer Loadings" will be analyzed. According to Hulland (1999), the indicator reliability value must be 0.40 or higher, to be accepted as explanatory, but the preferred is to be 0.70 or higher. As it can be seen in Table 2, every variable considered in the model is above the value 0.70 except PE4 that presents 0.581. Since the value of PE4 is above 0.40, it will still be considered as a part of the model.

Table 2 – Outer Loadings of Reflective Constructs

Construct	Variable	Loadings
Attitude	AT4R	0.860
	AT3R	0.754
	AT5R	0.749
Subjective Norm	SN1	0.808
	SN2	0.883
	SN3	0.750
	SN4	0.889
Willingness to Pay	WTP1	0.794
	WTP2	0.929
	WTP3	0.919

Green Self-Identity	GSI3	0.757
	GSI4	0.806
	GSI5	0.850
	GSI6	0.830
Past Experience	PE1	0.753
	PE2	0.784
	PE3	0.799
	PE4	0.581
Buying Behavioral Intention	BBI1	0.913
	BBI2	0.897
	BBI3	0.877
Buying Behavior	BB1	0.822
	BB2	0.860
	BB3	0.830
	BB4	0.868
	BB5	0.703
	BB6	0.723

Following, it is important to understand the reliability of the constructs. To confirm the internal consistency reliability, Composite Reliability should be 0.7 or higher. Although that value is preferred, 0.6 or higher is still acceptable to be considered explanatory (Bagozzi and Yi, 1988). In Table 3, it can be seen that every value is equal or above 0.8, meaning that the constructs are reliable. To reconfirm the reliability, the Cronbach's Alpha should also be analyzed. According to Hair, Anderson and Tatham (1998), the minimum requirement of Cronbach's Alpha coefficient is 0.7. It can be observed that the Cronbach's Alpha coefficient of Subjective Norm (0.853), Willingness to Pay (0.853), Green Self-Identity (0.794), Buying Behavioral Intention (0.877) and Buying Behavior (0.890) meet this requirement. When considering only one decimal place, the constructs Attitude (0.698) and Past Experience (0.670) also fulfill it. This means that the model is reliable.

To analyze the validity, it is necessary to take a closer look to convergent validity, through the AVE. According to Bagozzi and Yi (1988), the AVE results should be 0.5 or higher, which is proven to be true in this model (Table 3) and the convergent validity is confirmed.

Table 3 – Assessment of Constructs' Internal Consistency Reliability and Convergent Validity

Reliability and Validity				
Construct	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Attitude	0.698	0.723	0.831	0.623
Subjective Norm	0.853	0.861	0.901	0.696
Willingness to Pay	0.858	0.883	0.913	0.780
Green Self-Identity	0.794	0.797	0.868	0.623
Past Experience	0.670	0.701	0.800	0.504
Buying Behavioral Intention	0.877	0.877	0.924	0.803
Buying Behavior	0.890	0.904	0.916	0.646

Still analyzing the validity of the model, is it critical to consider the Discriminant Validity. This one can only be considered as well established when the values of the square root of AVE in each variable with itself are larger than the correlations with other variables (Fornell and Larcker, 1981). In the Table 4 it is proven that the Discriminant Validity of this research model is well established.

Table 4 – Fornell-Larcker Criterion Analysis of Discriminant Validity

Discriminant Validity							
Variables	Attitude	Buyer Behavioral Intention	Buying Behavior	Green Self-Identity	Past Experience	Subjective Norm	Willingness to Pay
Attitude	**0.789**						
Buyer Behavioral Intention	0.381	**0.896**					
Buying Behavior	0.319	0.726	**0.804**				
Green Self-Identity	0.419	0.583	0.538	**0.790**			
Past Experience	0.328	0.606	0.696	0.463	**0.710**		
Subjective Norm	0.196	0.470	0.428	0.358	0.403	**0.834**	
Willingness to Pay	0.341	0.537	0.546	0.506	0.462	0.281	**0.883**

4.3. Model Variables

To better understand the predictors and how much the respondents related themselves with the statements, it is crucial to analyze the results of each item regarding the statistical measure mean (M) and standard deviation (SD).

The Table 5 presents data regarding the items and their M, SD and about the number and percentage of responses that were negative (1 = strongly disagree, 2 = disagree, 3 = partially disagree), neutral (4 = neither agree nor disagree) and positive (5 = partially agree, 6 = agree, 7 = strongly agree). Since the Likert scale that was used for this research was 7-likert scale point to perform the analysis, it was used a threshold value of 4 which was coded as the neutral value of the scale (Marôco, 2007).

The construct attitude is going to be analyzed before being recoded, to provide valuable insights. The recoded construct is used for the PLS structural equation modeling.

Table 5 – Descriptive Analysis of Items

Construct	Variable	Item	M	SD	1 to 3 N	1 to 3 %	4 N	4 %	5-7 N	5-7 %
Attitude	AT3	Environmental protection works are simply a waste of money and resources	1.5	0.9	427	96%	10	2%	8	2%
	AT4	Environmental protection issues are none of my business	1.7	1.1	408	92%	23	5%	14	3%
	AT5	I think environmental protection is meaningless	1.2	0.7	438	98%	2	0%	5	1%
Subjective Norm	SN1	My friends often discuss environmental issues/products with me	4.0	1.6	168	38%	68	15%	209	47%
	SN2	My friends, often, recommend environment-friendly products to me	3.5	1.7	223	50%	62	14%	160	36%
	SN3	My friends often go shopping for green products with me	2.3	1.4	358	80%	47	11%	40	9%
	SN4	My friends often share their experiences and knowledge about green products with me	3.8	1.7	192	43%	58	13%	195	44%
Willingness to Pay	WTP1	I am willing to pay more for regional products	4.9	1.4	79	18%	44	10%	322	72%
	WTP2	I am willing to pay more for environmentally friendly packaging	4.9	1.4	83	19%	41	9%	321	72%

			Mean	SD						
	WTP3	I am willing to pay more for environmentally friendly cleansing agents or detergents	4.8	1.4	82	18%	54	12%	309	69%
Green Self-Identity	GSI3	I prefer to buy groceries which are produced according to fair trade standards (Fairtrade/Transfair)	5.2	1.4	39	9%	94	21%	312	70%
	GSI4	Supporting environmental protection makes me feel that I'm an environmentally-responsible person	5.7	1.1	12	3%	45	10%	388	87%
	GSI5	I feel proud of being a green person	5.2	1.3	36	8%	92	21%	317	71%
	GSI6	Supporting environmental protection makes me feel meaningful	5.0	1.4	50	11%	101	23%	294	66%
Past Experience	PE1	I use biodegradable soaps or detergents	3.3	1.6	244	55%	87	20%	114	26%
	PE2	I avoid buying aerosol products	4.6	1.9	124	28%	78	18%	243	55%
	PE3	I buy products in packages that can be refilled	4.9	1.5	76	17%	63	14%	306	69%
	PE4	I recycle bottles. cans or glass	5.9	1.6	53	12%	18	4%	374	84%
Buying Behavior Intention	BB1	I plan to use green products	5.4	1.4	35	8%	65	15%	345	78%
	BBI2	I intend to buy green products within the next 30 days	5.0	1.5	51	11%	106	24%	288	65%
	BBI3	I will strongly recommend green product purchase to others	5.3	1.5	47	11%	67	15%	331	74%
Buying Behavior	BB1	I inform myself which groceries are environmentally polluted and don't buy them any longer	4.3	1.6	131	29%	81	18%	233	52%
	BB2	I more frequently deliberately buy products which have a lower environmental impact	4.7	1.5	89	20%	77	17%	279	63%
	BB3	I often buy organic products	4.5	1.5	100	22%	98	22%	247	56%
	BB4	I often buy products that are labeled as environmentally- safe	4.6	1.4	91	20%	95	21%	259	58%
	BB5	I often buy products that are against animal-testing	4.6	1.7	104	23%	100	22%	241	54%
	BB6	I often buy products that contain no or fewer chemical ingredients	4.2	1.6	142	32%	97	22%	206	46%

Attitude – This construct has a mean of 1.5 which means that most respondents disagree with the statements. In this case, it means that the respondents' attitude toward the environment is positive, since the questions are placed negatively, and the respondents choose to somehow disagree. Also, through the SD, it can be inferred that most responses were homogeneous with little dispersion ($SD_{AT3}=0.9$; $SD_{AT4}=1.1$; $SD_{AT3}=0.7$). Regarding this construct, over 90% believe that environmental protection is a reality and more effort should be put to improve it.

The most unanimous answer to this construct, was regarding AT5, where 365 respondents strongly disagreed with "I think the environmental protection is meaningless".

Subjective Norm – This construct presents a mean of 3.4, which means most respondents believe that their friends do not play a strong role regarding the promotion of environmental protection and green products purchase. The item SN3 "My friends often go shopping for green products with me" is the one that presents the lower mean (2.3), where 80% of the respondents disagreed with the statement. On the other hand, the item SN1 "My friends often discuss environmental issues/products with me" has a mean of 4.0 and 209 individuals answered agreed somehow with the statement.

Willingness to Pay – Regarding this construct, most respondents somehow agreed (72%) with the statements, leading to a mean above 4.0 (M= 4.9). According to the participants, they are willing to pay more for regional products, for environmentally friendly packaging and environmentally friendly cleaning agents and detergents.

Green Self-Identity – This construct presents the most favorable mean according to the coding (5.3) which infers that respondents consider themselves as somehow green. Regarding this construct, the item GSI4 "Supporting environmental protection makes me feel that I'm an environmentally-responsible person" is the one with the highest agreement rate (87%), where 388 answered that they somehow agreed with the sentence. On the other hand, the item GSI6 "Supporting environmental protection makes me feel meaningful" is the one that, in this construct, presents the biggest neutral sample: 23% of the respondents neither agree nor disagree with the statement.

Past Experience – The mean of this construct is 4.7, which means that in general, the respondents somehow agree with the statements. The item PE1 "I use biodegradable soaps or detergents" is the one that, in this construct, presents the lowest mean (3.3), which means that there is a bigger weight of negative answers. In PE1 30% of the participants partially disagreed

with the statement of a total of 55% of somehow disagreeing. On the other hand, the item PE4 "I recycle bottles, cans or glass", presented a total of 84% of positive answers and a mean of 5.9, from which 51% of respondents stated that they totally agreed with this statement.

Buying Behavioral Intention – This construct presents a mean of 5.2, meaning that there is a high buying behavior intention among the respondents. BBI1 "I plan to use green products" is the variable regarding this construct that presents higher agreement levels, in which 78% of the respondents somehow agreed. When considering a defined amount of time, this level of agreement reduces to 65%, as it can be inferred in BBI2 "I intend to buy green products within the next 30 days".

Buying Behavior – Regarding this construct, the mean is 4.5 and most respondents somehow agree with the statements. In the variable BB5 "I often buy products that are against animal-testing" presents the highest amount of responses as "Neither agree nor disagree" (100 responses = 22% of responses). Neutral positions are not ideal since it does not contribute with relevant insights to the study of green buying behavior. The remaining items supporting this construct present higher levels of agreement rather than neutral positions.

On the overall, the constructs that present more relevant means according to their coding are Attitude (M_{ATT}=1.5) and Green Self-Identity (M_{GSI}=5.3). Attitude presents the lower SD, meaning that the results are the most homogenous, and Past Experience and Subjective Norm, present the highest SD, meaning that the concentration of the responses are more dispersed.

4.4. Structural Model

To assess the Structural Model, there is the need of studying collinearity issues, to analyze the significance and relevance of the structural model relationships, to analyze R^2 and goodness of fit of the model.
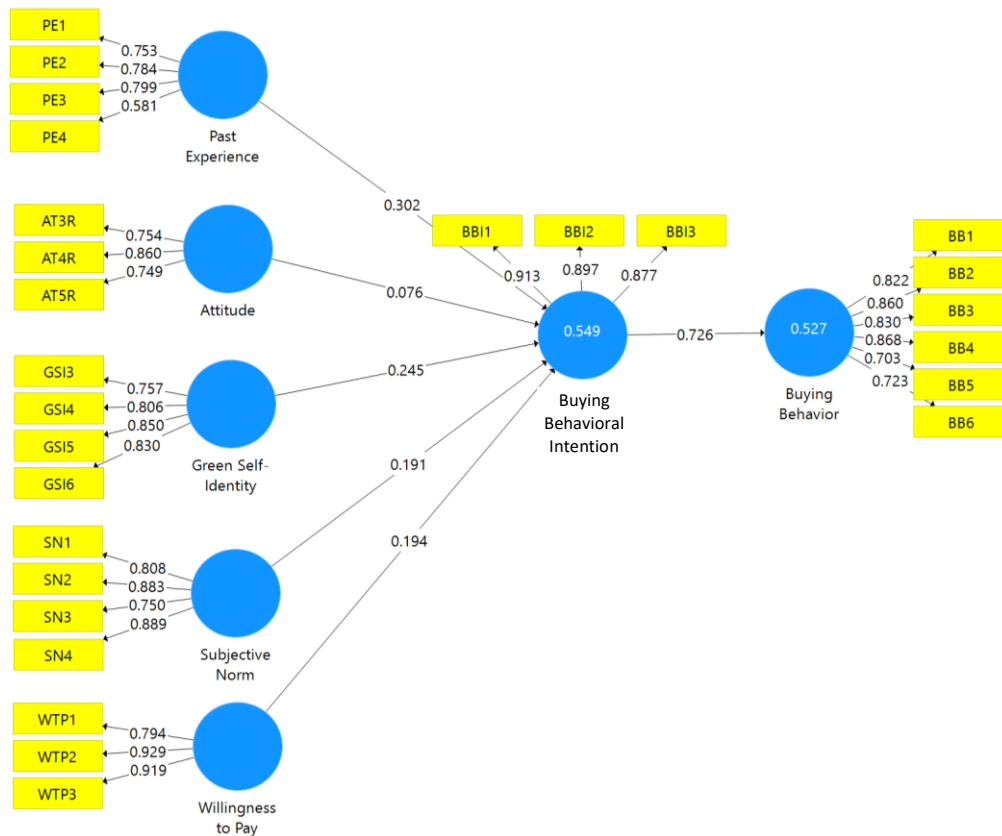
Figure 4 – Structural Model

The collinearity of the regression was assessed through Variance Inflation Factor (VIF) analysis. Since the values of the variables were below 5.0 (Hair, Ringle and Sarstedt, 2011), collinearity is not an issue (Table 6).

Table 6 – Collinearity Statistics of Variance Inflation Factor of Inner Model

Variance Inflation Factor		
Construct	Variable	VIF
Attitude	AT3R	1.308
	AT4R	1.495
	AT5R	1.352

Construct		
Subjective Norm	SN1	1.907
	SN2	2.628
	SN3	1.575
	SN4	2.536
Willingness to Pay	WTP1	1.659
	WTP2	2.220
	WTP3	2.997
Green Self-Identity	GSI3	1.210
	GSI4	1.866
	GSI5	2.115
	GSI6	1.972
Past Experience	PE1	1.201
	PE2	1.392
	PE3	1.406
	PE4	1.169
Buying Behavioral Intention	BBI1	2.783
	BBI2	2.475
	BBI3	2.142
Buying Behavior	BB1	2.456
	BB2	2.824
	BB3	2.385
	BB4	2.832
	BB5	1.617
	BB6	1.770

When considering the collinearity of the constructs (Table 7), it can still be stated that it is not an issue and that all the constructs are relevant to this model.

Table 7 – Collinearity Statistics of Variance Inflation Factor of Outer Model

	Variance Inflation Factor	
Construct	**Buying Behavioral Intention**	**Buying Behavior**
Attitude	1.267	
Buying Behavioral Intention		1.000
Green Self-Identity	1.634	
Past Experience	1.523	
Subjective Norm	1.252	
Willingness to Pay	1.501	

PLS algorithm calculation provides the final model diagram, from which it can be found the path coefficients, i.e. relationships between the constructs for structural model, and the R^2 values of the endogenous constructs that are shown inside the circles. This provides valuable information to perform a preliminary analysis. The path coefficients values are between -1 and +1 and represent the strength of the hypothesized relationships.

Regarding the coefficient of determination, R^2, it is used to assess how much a model explains the future outcomes, through the level of variance, measuring the model accuracy. According to Chin (1998), for the model to be significant, the R^2, should be over 0.3. As it can be seen in Table 8, both coefficients are above 0.3, which means that the significance level is attained.

According to the model, the coefficients of determinations, R^2, are 0.549 for the Buying Behavioral Intention and 0.527 for the variable of Buying Behavior. This means that the variables of Attitude, Subjective Norm, Willingness to Pay, Green Self-Identity and Past Experience moderately explain 54.9% of the variance in Buying Behavioral Intention and that the variable Buying Behavioral Intention explains 52.7% of the variance Buying Behavior.

Table 8 – Coefficient of Determination (R^2 Value)

Construct	R^2 Value
Buyer Behavioral Intention	0.549
Buying Behavior	0.527

To understand the goodness of the model, there are several tests that should be conducted. The used platform – Smart PLS – provides the analysis of Standardized Root Mean Square Residual (SRMR), Chi-Squared and Normed Fix Index (NFI), for both saturated and estimated models. The saturated model evaluates the correlation between every construct. On the other hand, the estimated model assesses the correlations presented in the model (Henseler, Ringle and Sarstedt, 2016).

The SRMR represents the difference between the expected correlation and the real correlation. Hair, Sarstedt, Hopkins and Kuppelwieser (2014) state that the optimal values to support this fit criterion must be below 0.08, which is met by the presented model ($SRMR_{EM}$=0.077). Therefore, this model meets a goodness of fit criteria.

Regarding the NFI, Bentler and Bonett (1980) state that the larger the number, within an interval of 0 to 1, the better. The presented value if relatively high, reaching the value of 0.801 in the Estimated Model.

Table 9 – Goodness of Fit Model

	Saturated Model (SM)	Estimated Model (EM)
SRMR	0.059	0.077
Chi-Square	1,226.374	1,332.929
NFI	0.817	0.801

The bootstrapping procedure analyses the significance of those path coefficient values, providing information regarding T-Statistics (path coefficient/standard deviation) and P Values (probability of rejecting the null hypothesis by mistake).

Table 10 – Results of Hypotheses Testing

Hypothesis	Path Coefficients	T Statistics	P Values		Hypothesis Support
H1	0.076	0.715	0.475		Not Supported
H2	0.191	3.236	0.001	*	Supported
H3	0.194	4.769	0.000	*	Supported
H4	0.245	2.837	0.005	*	Supported
H5	0.302	2.116	0.035	*	Supported
H6	0.726	4.640	0.000	*	Supported
*p-value is significant at 5%					

H1 - There is a positive relation between attitude and green buying behavioral intention:

H1 defends that there is a positive relation between attitude and green buying behavioral intention. Considering the inner model path coefficients, attitude is the construct that least impacts Buying Behavioral Intention (0.076). Regarding the validity regression model, the null hypothesis was not rejected.

As a result, it can be stated that H1 was not supported and that attitude does not present a positive relation with green buying behavioral intention and cannot be considered as a direct predictor of Buying Behavioral Intention.

This statement supports some of the literature, such as of Moser (2015) but contradicts the findings of some authors such as of Michaelidou and Hassan (2008) and Cheung *et al.* (1999).

H2 - There is a positive relation between subjective norm and green buying behavioral intention:

The hypothesis 2 defends that the subjective norm is a predictor of green buying behavioral intention. The validity regression model proves that this construct is relevant in explaining this model. Through the inner model path coefficient, it is suggested that subjective norm is the fourth most significant construct explaining buying behavioral intention (0.191).

Therefore, subjective norm is indeed a predictor of green buying behavioral intention, such as previously supported by Cheung et *al.* (1999) and Chan and Lau (2002).

H3 - There is a positive relationship between willingness to pay and green buying behavioral intention:

Hypothesis 3 suggests that willingness to pay impacts positively green buying behavioral intention. The validity regression model is proven (p=0.000<0.05) and the t-value shows a positive and relevant relationship between the variables (t-value=4.769>2). Also, concerning the inner model path coefficient sizes and significance, the inner model suggests that Willingness to Pay has the third most substantial impact (0.194).

Hence, willingess to pay presents a positive relationship with green buying behavioral intention, as previously stated by Moser (2015).

H4 - There is a positive relation between green self-identity and green buying behavioral intention:

The relationship between green self-identity and green buying behavioral intention was studied in H4. The p-value is 0.005(<0.05), which confirms the validity of this model since the null

hypothesis was rejected. To support this validity, t-value=2.837>2, reinforcing this positive relation between the constructs. Through analyzing the inner model path coefficient, Green Self-Identity is the second most significant construct impacting Buying Behavioral Intention (0.245).

As a result, green self-identity affects positively the green buying behavioral intention, as proven by Michaelidou and Hassan (2008) and Barbarossa and Pelsmacker (2016).

H5 - There is a positive relation between past experiences and green buying behavioral intention:

This hypothesis aims to find a positive relation between past experiences and green buying behavioral intention. The p-value=0.035<0.05, meaning that the null hypothesis was rejected and that the independent variable Past Experiences explains positively the green buying behavioral intention. Also, the t-value=2.116>2 which translates as a positive and significant relation between both constructs. This construct is the one that most impacts Buying Behavioral Intention, accounting a value of 0.302 of inner model path coefficient.

Therefore, H5 is supported, such as presented in the literature through Khara and Varshneya (2017), Kim and Chung (2011) and D'Souza *et al*. (2006).

H6 - There is a positive relationship between green buying behavioral intention and green buying behavior:

Hypothesis 6 purposes to verify if there is a positive relation between green buying behavioral intention and green purchase. The p-value=0.000<0.05 and it denotes that the null hypothesis was rejected and that the independent variable past experiences is explanatory of green buying behavior. The t-value=4.640>2 reinforces the positive and significant relation between both constructs. According to the path coefficients, it can be seen that buying behavioral intention highly impacts buying behavior (0.726)

As a result, H6 is supported, as previously supported by Chan and Lau (2002) and Cheung *et al*. (1999).

5. Conclusion

5.1. Main Findings

This research intends to provide insights regarding the main determinants of Portuguese millennials' green purchasing intentions. This fulfills a gap in the literature since most studies were not targeting this population group in Portugal. The analysis of this specific target is crucial since millennials sustainability values and motivations vary in different cultures (Hanson-Rasmussen, 2018).

The growing weight of the topic of sustainability these days (Kassaye, 2001) leads to the need of understanding what should be the role of companies in this transformation (Chang, 2011). Consumers are more informed than in the past and get that information in any moment, through any device connected to internet (McMillian, 2014). Also, there are more offers and therefore, they can be more demanding regarding their consumption and purchasing options (McMillian, 2014). These features are more visible and became intrinsic in the millennials' attitudes and choices (Phillips, 2007), becoming crucial to understand what motivates their buying intentions and purchases.

In this research, the framework of the Theory of Planned Behavior was adapted and reinforced with other determinants, to collect more valuable and complete insights about this topic.

The variables of attitude and subjective norm were maintained, due to the reliability proven in previous research (Oliveira-Brochado *et al.*, 2015; Kim and Chung, 2011).

On another hand, in her research, Moser (2015) decided to narrow the variable of perceived behavioral control to willingness to pay, considering the statement of Ajzen (2002) of the importance of specifying factors to acquire more valuable insights when studying the foundation of behavioral control. This adaption was brought to this study.

Green self-identity and past experiences was considered as strong predictors in previous studies. The first one was proved to influence positively green behavior (Mannetti *et al*., 2004; Stets and Biga, 2003) and that it reduced the attitude-behavior gap (Sparks *et al*., 1995). Regarding the second one, according to Boldero (1995), behavior is influenced by repetitiveness, and having a past experience will increase the chances of incurring in that action again, becoming relevant when predicting behavior (Oulette and Wood, 1998).

All the previous determinants were hypothesized as if each construct impacted positively buying behavior intention and buying behavior.

The items chosen to measure these constructs were used in previous studies, meaning that were already validated by the authors Yamoah *et al.* (2016), Oliveira-Brochado *et al.* (2015), Moser (2015), Lee (2009), Pickett-Baker and Ozaki (2008) and Lin (2007).

In order to fulfill the needs of the study, a quantitative data collection was performed in the online platform of Qualtrics Research Platform. This survey was shared on social media networks, messaging apps and through direct approach offline, aiming to collect many answers without biasing the results.

From a universe of 530 responses, a total of 85 answers were considered as invalid that results in a final sample of 445 answers supporting this research. The validation of the hypothesis was crucial to take conclusions and draw managerial implications.

Attitude was the only construct that did not influence positively buying behavior directly. This contradicted the finding of Michaelidou and Hassan (2008) and Cheung *et al.,* (1999) but is in line with results on Moser's (2015) study. When analyzing the number of responses where the respondents claimed to have a somehow positive attitude towards environmental protection, this number is significantly high (approximately 95%). This could create the perception that it would impact positively behavior intention. But the truth is that "PBC factors might also hinder consumers from transferring their attitude into behavior" (Moser, 2015:171). This means that although there is attitude towards protecting the environment, it only affects behavior intention positively if the individual feels like he can perform an action (Madden *et al*., 1992). Hence, attitude could be used as moderator to behavior instead of being presented as a determinant (Moser, 2015).

Subjective norm was considered as impactful when explaining behavior intention, as previously proven by Chan, Wong and Leung (2008). In their study, it was shown that adolescents were strongly influenced by their families. Also, Littman (2008) claims that millennials are influenced by the opinion of their social group, in person and in social networks. The current study is aligned with these statements and reinforces the importance of socials groups when building intentions.

As presented in the literature, willingness to pay it is not a barrier to behavior intention (Gupta and Ogden, 2009; D'Souza *et al*., 2007; Auger *et al.*, 2003; Oyewole, 2001) since green consumers are more available to pay higher prices to fulfill their desires and demands for higher quality products (Olson, 2013; Tanner and Wölfing Kast, 2003). The findings in this research are somehow aligned with Moser (2015), although, unlike in her research, willingness to pay was not the strongest predictor. This means that the Portuguese millennial population is more sensitive to price fluctuations than the German population. The fact that the Portuguese have an average net wage of 53% of the German's (OECD, 2017) can influence the availability to pay more for eco-friendly products.

Green self-identity was the second most significant predictor influencing buying behavioral intention. This finding is supported in the literature by Barbarossa and Pelsmacker (2016) and Michaelidou and Hassan (2008). As Sharp *et al.* (2007) once proved, the variable of self-identity is more relevant in adolescents. In the scope of this study, this statement can be extended to the millennial layer since millennials want products that reflect their identity and lifestyle (Caplan, 2005).

Past Experience is the most explanatory construct towards buying behavioral intention. This was largely studied in the past and the findings of Khare and Varshneya (2017), Kim & Chung (2011) and D'Souza *et al*. (2006) supports the result of past experience impacting positively behavior intention. As Boldero (1995) stated, the repetitiveness may lead to a habit that consequently increases the pretension of acting.

At last, buying behavioral intention is highly explanatory of buying behavior (0.726). This means, such as proven in the past by Chan *et al*. (2002) and Cheung *et al*. (1999), the predictive power of green buying behavior intention impacts positively green buying behavior. However, Paço and Raposo (2009), while segmenting the Portuguese green consumers, concluded that the segment where millennials best suit, were called "The uncommitted", since although they had a large awareness towards sustainability issues, they did not act green. The truth is that according the findings on this paper, the gap between intention and behavior is not high and it contradicts what previously stated by Paço and Raposo (2009). This might vary due to the sample itself of location of the study, since most responses were from Lisbon residents.

At last, the aim of this study was fulfilled, and it was possible to determine what are the main determinants of Portuguese millennial's green buying behavioral intentions: subjective norm,

willingness to pay, green self-identity and past experience are explanatory of buying behavior intention whereas attitude does not explain it directly and should be used as a mediator.

5.2. Theoretical Contribution

Many researchers studying sustainability issues and behavior prediction use the Theory of Planned Behavior (Ajzen, 1991) as a framework. However, it presents limitations that were aimed to be overcome in this study.

The original Theory of Planned Behavior (Ajzen, 1991) used three constructs as predictors of behavior intention. Throughout the years it was seen that this framework is powerful when determining behavior intention but that might lack on the variables it use (Ajzen, 2002). Thus, many researches have been adapting and extending this model with other variables with the goal of getting outputs that are nearer to the reality.

By introducing new variables to the model – willingness to pay (instead of PBC), green self-identity and past experience – it was possible to assess the relevance of every construct to the behavior intention of the TPB. Since past experience and green self-identity were, respectively, the first and the second most significant determinants to behavior intention, it can be stated that there is great benefit to always incorporate these variables in the original TPB when studying the topic of eco-friendly purchasing.

Also, through this study, it is also possible to reinforce the findings previously presented by Moser (2015) – that attitude does not impact positively buying behavior. Attitude only becomes meaningful is there is the perception of capability of performing the action (Madden *et al.*, 2002). By providing one more foundation towards this belief, it theoretically contributes to a rethinking or adaptation of the TPB model.

The universe of studies targeting the Portuguese population within the sustainability and green purchase behavior topics is reduced. It becomes narrower if millennials are considered. Therefore, this study provides new and insightful information about the motivations for purchase intention that is critical for the future sustainability of companies.

5.3. Practical Implications

The population and the market are ready to evolve to a greener shift. The business opportunities resulting from this reality are enormous (Banerjee et *al.*, 2003) for the Portuguese market.

Narula and Desore (2016) remind the importance of adapting the marketing strategy in every aspect, such as new offer and eco-targeted communication. Companies are already adapting their offer to provide a greener experience to their customers and to fulfill the demand. One example is L'Oréal Professional that has launched the brand Botanicals that presents a range of hair care and coloring products based on fair trade and natural ecological responsible ingredients (L'Oréal Paris, 2017).

A finding of this study posits that Portuguese are price sensitive. Although the eco-friendly products are usually more expensive than regular ones, statistics show that in 2014, 62% of the Portuguese population was willing to buy green products if it cost slightly more (Eurobarometer Report, 2014). Continente, the largest Portuguese retailer, has recently launched a range of ecological cleaning products that cost nearly the same as both regular products (Continente, 2018). The investment done by Continente, launching this range of products under their distributor brand is relevant and adapted to the Portuguese reality, considering the economic and financial situation of this population.

Since the strongest predictor was past experience, it is important for companies to provide these experiences, but being effort free for the customer. By allowing consumers to experiment their products and services free of cost, with per example samples, it will allow them to experience the benefits and build a positive perception in their minds. If this is a repeated process, it might create a habit of green purchase.

Considering that millennials are not a homogeneous group (Foscht *et al.*, 2009; Manpower, 2007) it is important that companies are really focused and realistic when defining their target, to provide what their millennial niche demands. This requires previous studies that must be conducted to understand what their target wants.

5.4. Limitations and Future Research

Although there were efforts to conduct this research in the most valuable and insightful way, it still presents some limitations that should be acknowledge by those who are reading it. It is important to take in consideration these limitations to guide future research in this topic.

Firstly, the study was conducted solemnly through a quantitative methodology. Although this method is effective collecting data in a homogeneous measured way, to provide more valuable information, this study could have been complemented by a qualitative approach, supporting the quantitative data, and reducing any bias resulting from the misinterpretations that might have occurred. On another hand, some concepts might have not been fully understood by the respondents, even though most concepts were introduced in the beginning of the inquiry.

Also, some statements might have gotten lost in translation, since every construct and item was firstly studied in English and only after that translated to Portuguese. Despite the several pre-tests and adaptation resulting from those, there still might have been misinterpretations of some of the items.

Since the study was targeting Portuguese people, the survey was bias to the Portuguese population and the projection to other samples might be misleading.

The use of the items chosen might also have been bias. For example, the subjective norm construct was only addressing the peer pressure from friends. If this variable was analyzed through, per example, the respondents' role models, the conclusion could have been different.

Regarding the collected sample, 53% of the respondents were aged between 21 and 24, which means that there is a lack of information from the older millennials. For future research it could be interesting to address an analysis of the green product buying behavioral intention of younger millennials – until than 25 years old – versus older millennials – over 25 years old.

The fact that most respondents were from Lisbon might also have bias the research because there might be different realities across the millennials across the country. The ideal scenario would be to have a similar sample from every area of residence.

At last, this study presents the exposed limitations that should be addressed when conducting similar studies, to provide even more valuable conclusions and insights.

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7. Attachments

Attachment 1 – Proposed Items in Portuguese

Construct	Items in Portuguese
Attitude (Moser, 2015; Lee, 2009)	**ATT1:** Hoje em dia, há demasiada discussão relativamente à proteção ambiental. **ATT2:** Hoje em dia, é feito o suficiente relativamente à proteção ambiental. **ATT3:** Projetos referentes à proteção ambiental são simplesmente uma perda de dinheiro e de recursos. **ATT4:** Os problemas referentes à proteção ambiental não têm a ver comigo. **ATT5**: Eu acho que a proteção ambiental não tem importância.
Subjective Norm (Lee, 2009)	**SN1:** Os meus amigos discutem frequentemente questões ambientais comigo. **SN2**: Os meus amigos recomendam-me frequentemente produtos amigos do ambiente. **SN3:** Os meus amigos vão frequentemente às compras comigo para comprar produtos verdes. **SN4:** Os meus amigos partilham comigo frequentemente experiências e conhecimento acerca de produtos verdes.
Willingness to Pay (Moser, 2015)	**WTP1:** Estou disposto a pagar mais por produtos regionais. **WTP2**: Estou disposto a pagar mais por produtos com embalagem amiga do ambiente. **WTP3:** Estou disposto a pagar mais por produtos de limpeza e detergentes amigos do ambiente.
Green Self-Identity (Moser, 2015; Lee, 2009)	**GSI1:** Prefiro comprar/comer carne de criação biológica. **GSI2:** Prefiro comprar produtos regionais devido às curtas distâncias de transporte. **GSI3:** Prefiro comprar produtos que sejam produzidos de acordo com os princípios do Comércio Justo.

	GSI4: Apoiar a proteção ambiental faz-me sentir uma pessoa ambientalmente responsável.
	GSI5: Eu sinto-me orgulhoso(a) por ser uma pessoa ambientalmente responsável.
	GSI6: Apoiar a proteção ambiental faz-me sentir que tenho um propósito.
Past Experience (Pickett-Baker and Ozaki, 2008)	**PE1:** Eu uso sabonetes e detergentes biodegradáveis. **PE2:** Eu evito comprar produtos com aerossóis. **PE3:** Eu compro produtos com embalagens que possam ser reutilizadas. **PE4:** Eu reciclo garrafas, latas e vidro. **PE5:** Eu levo os meus próprios sacos para o mercado/supermercado. **PE6:** Eu tento não usar muito o carro. **PE7:** Eu contribuo com dinheiro para causas ambientais.
Buying Behavioral Intention (Lin, 2007; Yamoah et *al.*, 2016; Oliveira-Brochado et *al*., 2015)	**BBI1**: Eu planeio usar produtos verdes. **BBI2:** Eu tenciono comprar produtos verdes nos próximos 30 dias. **BBI3:** Eu recomendo que outros comprem produtos verdes. **BBI4:** Café de Comércio Justo **BBI5:** Lâmpadas LED **BBI6:** Produtos com embalagens recicladas **BBI7:** Papel reciclado **BBI8:** Produtos biodegradáveis
Buying Behavior (Moser, 2015; Lee, 2009)	**BB1:** Eu informo-me acerca dos produtos que causam impacto negativo no ambiente e não os compro mais. **BBI2:** Eu pondero frequentemente comprar produtos que têm baixo impacto ambiental. **BBI3:** Eu compro frequentemente produtos orgânicos. **BBI4:** Eu compro frequentemente produtos que são rotulados como seguros para o ambiente. **BBI5:** Eu compro frequentemente produtos que não são testados em animais. **BBI6:** Eu compro frequentemente produtos que contêm poucos ou nenhuns ingredientes químicos.

Attachment 2 – Survey in Portuguese

Para responder às questões que se seguem, peço que:
- Considere "produtos verdes" como produtos com produção sustentável, que sejam ecológicos, biológicos e/ou socialmente responsáveis.
- Considere "Comércio Justo" como a parceria entre produtores e consumidores que procura promover a equidade social, a proteção ambiental e a segurança económica.

Relativamente à atitude perante a proteção ambiental, indique o grau de concordância com as seguintes afirmações:

	Discordo totalmente	Discordo	Discordo parcialmente	Não concordo nem discordo	Concordo parcialmente	Concordo	Concordo totalmente
Hoje em dia, há demasiada discussão relativamente à proteção ambiental.	○	○	○	○	○	○	○
Hoje em dia, é feito o suficiente relativamente à proteção ambiental.	○	○	○	○	○	○	○
Projetos referentes à proteção ambiental são simplesmente uma perda de dinheiro e de recursos.	○	○	○	○	○	○	○
Os problemas referentes à proteção ambiental não têm a ver comigo.	○	○	○	○	○	○	○
Eu acho que a proteção ambiental não tem importância.	○	○	○	○	○	○	○

Relativamente ao seu contexto social, indique o grau de concordância com as seguintes afirmações:

	Discordo totalmente	Discordo	Discordo parcialmente	Não concordo nem discordo	Concordo parcialmente	Concordo	Concordo totalmente
Os meus amigos discutem frequentemente questões ambientais comigo.	○	○	○	○	○	○	○
Os meus amigos recomendam-me frequentemente produtos amigos do ambiente.	○	○	○	○	○	○	○
Os meus amigos vão frequentemente às compras comigo para comprar produtos verdes.	○	○	○	○	○	○	○
Os meus amigos partilham comigo frequentemente experiências e conhecimento acerca de produtos verdes.	○	○	○	○	○	○	○

Relativamente à disponibilidade para pagar mais pela compra de produtos verdes/sustentáveis, indique o grau de concordância com as seguintes afirmações:

	Discordo totalmente	Discordo	Discordo parcialmente	Não concordo nem discordo	Concordo parcialmente	Concordo	Concordo totalmente
Estou disposto a pagar mais por produtos regionais.	○	○	○	○	○	○	○
Estou disposto a pagar mais por produtos com embalagem amiga do ambiente.	○	○	○	○	○	○	○
Estou disposto a pagar mais por produtos de limpeza e detergentes amigos do ambiente.	○	○	○	○	○	○	○

Relativamente ao quão ecológico se considera, indique o grau de concordância com as seguintes afirmações:

	Discordo totalmente	Discordo	Discordo parcialmente	Não concordo nem discordo	Concordo parcialmente	Concordo	Concordo totalmente
Prefiro comprar/comer carne de criação biológica.	○	○	○	○	○	○	○
Prefiro comprar produtos regionais devido às curtas distâncias de transporte.	○	○	○	○	○	○	○
Prefiro comprar produtos que sejam produzidos de acordo com os princípios do Comércio Justo.	○	○	○	○	○	○	○
Apoiar a proteção ambiental faz-me sentir uma pessoa ambientalmente responsável.	○	○	○	○	○	○	○
Eu sinto-me orgulhoso(a) por ser uma pessoa ambientalmente responsável.	○	○	○	○	○	○	○
Apoiar a proteção ambiental faz-me sentir que tenho um propósito.	○	○	○	○	○	○	○

Relativamente a experiências do passado, indique o grau de concordância com as seguintes afirmações:

	Discordo totalmente	Discordo	Discordo parcialmente	Não concordo nem discordo	Concordo parcialmente	Concordo	Concordo totalmente
Eu uso sabonetes e detergentes biodegradáveis.	○	○	○	○	○	○	○
Eu evito comprar produtos com aerossóis.	○	○	○	○	○	○	○
Eu compro produtos com embalagens que possam ser reutilizadas.	○	○	○	○	○	○	○
Eu reciclo garrafas, latas e vidro.	○	○	○	○	○	○	○
Eu levo os meus próprios sacos para o mercado/supermercado.	○	○	○	○	○	○	○
Eu tento não usar muito o carro.	○	○	○	○	○	○	○
Eu contribuo com dinheiro para causas ambientais.	○	○	○	○	○	○	○

Relativamente à intenção de comportamento de compra, indique o grau de concordância com as seguintes afirmações:

	Discordo totalmente	Discordo	Discordo parcialmente	Não concordo nem discordo	Concordo parcialmente	Concordo	Concordo totalmente
Eu planeio usar produtos verdes.	◯	◯	◯	◯	◯	◯	◯
Eu tenciono comprar produtos verdes nos próximos 30 dias.	◯	◯	◯	◯	◯	◯	◯
Eu recomendo que outros comprem produtos verdes.	◯	◯	◯	◯	◯	◯	◯

Quão provável é comprar os seguintes produtos nas próximas quatro semanas?

	Muito improvável						Muito provável
Café de Comércio Justo	◯	◯	◯	◯	◯	◯	◯
Lâmpadas LED	◯	◯	◯	◯	◯	◯	◯
Produtos com embalagens recicladas	◯	◯	◯	◯	◯	◯	◯
Papel reciclado	◯	◯	◯	◯	◯	◯	◯
Produtos biodegradáveis	◯	◯	◯	◯	◯	◯	◯

Relativamente ao comportamento de compra, indique o grau de concordância com as seguintes afirmações:

	Discordo totalmente	Discordo	Discordo parcialmente	Não concordo nem discordo	Concordo parcialmente	Concordo	Concordo totalmente
Eu informo-me acerca dos produtos que causam impacto negativo no ambiente e não os compro mais.	○	○	○	○	○	○	○
Eu pondero frequentemente comprar produtos que têm baixo impacto ambiental.	○	○	○	○	○	○	○
Eu compro frequentemente produtos orgânicos.	○	○	○	○	○	○	○
Eu compro frequentemente produtos que são rotulados como seguros para o ambiente.	○	○	○	○	○	○	○
Eu compro frequentemente produtos que não são testados em animais.	○	○	○	○	○	○	○
Eu compro frequentemente produtos que contêm poucos ou nenhuns ingredientes químicos.	○	○	○	○	○	○	○

Género

○ Feminino

○ Masculino

○ Outro

Idade

_____

Local de Residência

▼ Aveiro ... Outro

Estado Civil

○ Solteiro(a)

○ Casado(a)

○ Divorciado(a)

○ Viúvo(a)

○ Outro _____

Número de Filhos

○ 0

○ 1

○ 2

○ 3

○ > 3

Qualificações Académicas (concluídas)

○ Ensino Básico

○ Ensino Secundário

○ Licenciatura

○ Mestrado

○ Doutoramento

○ Outro _____

Situação Profissional

○ Estudante

○ Trabalhador(a)

○ Trabalhador(a) Estudante

○ Desempregado(a)

○ Outro _____

Rendimento do Agregado Familiar Mensal

○ < 500€

○ 500€ - 999€

○ 1000€ - 1499€

○ 1500€ - 1999€

○ 2000€ - 2499€

○ > 2500€