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FACTORS INFLUENCING CONSUMERS' INTENTION AND  
BEHAVIOUR TOWARDS ORGANIC FOODS: A COMPARATIVE STUDY  
BETWEEN PORTUGAL AND NORWAY

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This dissertation goes much beyond the written words on the following pages: it encompasses the dream of uncovering the breath-taking landscapes of the North; the wilderness of the dark winter sky overtaken by the magnificence of the northern lights; the freshness of the deep blue water of the fiords and the nutty smell of the colourful Norwegian wooden houses. It was born from an old childhood dream, raised upon a mixture of feelings of joy and “saudade” and only became possible due to the support of my family and closest friends, to whom I am for ever grateful. Yet, some people played a major role during this process and because of that they deserve a special recognition.

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## **Abstract**

*Objective:* The goal of the present research is to analyse the impact of cognitive variables such as attitude and subjective norm, as well as the constructs of health consciousness, environmental concern, price and availability, on Portuguese and Norwegian consumers' purchase intention towards organic foods and on the behaviour itself. Additionally, it aims at understanding how cultural dimensions (i.e., collectivism/individualism and long-term/short-term orientation) affect consumers' promptness to purchase organic foods in the above mentioned countries.

*Method:* Data from two independent samples, a Portuguese and a Norwegian one, was collected through structured questionnaires. Confirmatory Factor Analysis, Structural Equation Modelling and Structural Invariance analysis were performed.

*Results:* The measurement and structural model in both groups had acceptable fit to the data. In addition, the hypothesized model exhibited, for both samples, direct and indirect effects between the several variables under analysis. The structural model was invariant, therefore demonstrating that the proposed extended TPB model fits both the Portuguese and the Norwegian samples and that consumers' perceptions of the model under analysis is similar in both countries.

*Conclusion:* Long-term orientation was found to significantly predict all constructs, except the price in the Portuguese sample. Contrarily, collectivism failed to reveal any significant impact, except for environmental concern in the Norwegian sample. Attitude, subjective norm and health consciousness emerged as the most significant predictors of consumers' intention to purchase organic foods in both nations. Additionally, health consciousness, attitude and long-term orientation significantly influenced consumers' behaviour in both countries. Companies and regulation bodies in Norway and Portugal should enhance the long-term impact of organic foods consumption, especially highlighting the associated positive health outcomes.

**Key-words:** Portugal, Norway, Theory of Planned Behaviour, consumer behaviour, organic foods.

**JEL-codes:** M31 Marketing

## Resumo

*Objetivo:* Este trabalho tem como objetivo analisar de que forma as variáveis cognitivas (e.g., atitude e normas subjetivas), a consciência da saúde, a preocupação com o ambiente, o preço e a disponibilidade influenciam a intenção de compra de produtos orgânicos e o comportamento dos consumidores portugueses e noruegueses. Este estudo visa ainda identificar o impacto das dimensões culturais (i.e., coletivismo/individualismo e orientação a longo/curto-prazo), na intenção e no comportamento dos consumidores em relação à compra de produtos orgânicos nestes dois países.

*Método:* Os dados das duas amostras foram recolhidos através de questionários estruturados e analisados com recurso a análises fatoriais confirmatórias e modelos de equações estruturais. Foi igualmente concretizada uma análise de invariância estrutural entre as duas amostras.

*Resultados:* Os dados ajustaram-se ao modelo e foram identificados efeitos diretos e indiretos entre as diferentes variáveis. No que concerne a análise multi-grupos, o modelo revelou-se invariante entre a amostra portuguesa e norueguesa, evidenciando assim que os consumidores em Portugal e na Noruega dispõem de percepções similares em relação à compra de produtos orgânicos.

*Conclusão:* A dimensão cultural da orientação a longo-prazo teve um impacto significativo em todas as variáveis, exceto na variável do preço, na amostra portuguesa. Contrariamente, o coletivismo não demonstrou qualquer relação significativa, salvo com a variável preocupação com o ambiente, na amostra norueguesa. A atitude, a norma subjetiva e a consciência da saúde foram os construtos mais significativos no que concerne a predição da intenção de compra de produtos orgânicos nas duas amostras. De referir ainda que a preocupação com a saúde, a atitude e a orientação a longo-prazo influenciaram significativamente o comportamento nos dois países. Assim, as empresas e as entidades legisladoras destes dois países devem promover o impacto que o consumo de produtos orgânicos terá no futuro, dando um especial enfâse aos benefícios do consumo deste tipo de produtos para saúde.

**Palavras-chave:** produtos orgânicos, Teoria do Comportamento Planeado, comportamento do consumidor, Portugal; Noruega

**Códigos JEL:** M31 Marketing

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# Section I | Introduction

## 1.1. Context

Consumers are becoming increasingly concerned about their health, the environment and the planet's sustainability. Thus, a significant number of people try to engage in behaviours known to positively impact health and/or the environment, such as purchasing organic foods rather than conventionally grown or industrially produced ones. In point of fact, organic foods are commonly believed to be healthier, more nutritious and environmentally friendlier (Lea & Worsley, 2005). As a consequence, a greater number of citizens chooses to purchase and consume organically grown foods. The increase in demand for this type of foods throughout the last years has contributed not only to the development of the organic foods' market, but also to the extension of the literature on the topic (Scalco, Noventa, Sartori, & Ceschi, 2017).

According to a report from TechSci Research (2017), the worldwide organic foods' market accounted for 110 250\$ billion in 2016 and was forecasted to grow at a Compound Annual Growth Rate (CAGR) of 16.15% in the period between 2017 and 2022, reaching the amount of 262 850\$ billion by 2022. Following the same trend, the European market for organic foods grew at an annual rate of 10.5% during the year of 2017 and is expected to continue doing so during the upcoming years (International Federation of Organic Agriculture Movements – IFOAM, 2019). Despite the market growth, the dimension of the organic foods' market is still relatively small and quite dissimilar when comparing different countries and regions (IFOAM, 2019). For instance, it is noticeable that in Europe, markets in different countries are at different development stages (IFOAM, 2019).

In order to keep pace with the market expansion, researchers have been trying to understand the motives fostering and hindering consumers to purchase organic foods. Several cognitive theories such as the Theory of Reasoned Action (TRA), the Theory of Planned Behaviour (TPB), the Value-Norm-Belief theory (VBN) and the Attitude-Behaviour-Context (ABC) theory have been employed in an attempt to identify the factors that influence consumers' purchase intention towards organic foods, as well as the behaviour itself (Rana & Paul, 2017).

The TPB is one of the most used social psychological models to predict human behaviour and intention to accomplish that specific behaviour. According to this framework, intention to perform behaviours of different kinds can be accurately predicted based on the attitudes towards the behaviour, subjective norm and perceived behavioural control (PBC) (Ajzen, 1991). This model has been employed in several and diversified contexts and specifically to the

context of consumer behaviour and consumer behaviour towards organic foods (Rana & Paul, 2017). Hence, attitudes towards organic foods, subjective norm and PBC are believed to influence consumers' intention to purchase organic foods, which in turn impacts consumers' behaviour. Thus, the stronger the intention a person displays towards purchasing organic foods, the more likely the person is to effectively purchase those foods.

Past studies have identified that beyond the cognitive aspects (e.g., attitude, PBC and subjective norm), consumers' concern about health and the environment act as main drivers for organic foods purchase intention (Rana & Paul, 2017), which can be due to the fact that consumers are ever more aware of health related issues and the seriousness of environmental degradation. By incorporating these constructs in the TPB, researchers (e.g., Asif, Xuhui, Nasiri & Ayyub, 2018; Paul & Rana, 2012; Yadav & Pathak, 2016) have extended its intention prediction.

On the other hand, price and availability have been pointed out as the main deterrents for people to purchase organic foods (Rana & Paul, 2017). Although consumers are more willing to pay a price premium for organic foods and socially responsible products, they still feel discouraged by the high price of organic foods (Rana & Paul, 2017). Similarly, consumers point out that there is no adequate offer of organic foods in the usual places they shop. Hence, if wanting to purchase organic foods, they need to go to special stores (Singh & Verma, 2017).

Even though the factors affecting consumers' intention and behaviour towards organic foods are not severely distinct depending on the country, their priority levels are significantly affected by individuals' country of origin (Rana & Paul, 2017). For instance, Yadav and Pathak (2016) found that environmental concern had no significant influence on consumers' purchase intention towards organic foods in India, but that health consciousness was one of the most important predictors of consumers' intention to purchase organic foods in that country. Contrarily, Michaelidou and Hassan (2008) reached the conclusion that environmental concern was the best predictor of consumers' intention to purchase organic foods in Scotland and that health consciousness had no significant influence on consumers' purchase intention towards organic foods.

It is widely accepted that culture directly influences consumer behaviour (Mooij & Hofstede, 2011). Research (Liobikienė, Mandravickaitė & Bernatoniene, 2016; Sreen, Purbey & Sadarangani, 2018) suggests that cultural dimensions, especially long-term orientation and collectivism, might be relevant variables in influencing consumers' purchase intention towards green products, such as organic foods.

To the best of our knowledge, virtually any study has analysed the influence of cultural dimensions on consumers' intention to purchase organic foods. As consumer behaviour is thought to be cultural bounded, understanding the impact of cultural dimensions on consumers' intention to purchase organic foods seems of the utmost importance.

The present study focuses on two European countries, namely Portugal and Norway. These countries have been chosen because they display several differences in what regards the organic foods market development, the economy, the geographic location and culture.

The development of the organic foods market in Portugal and Norway is at significantly different stages (IFOAM, 2019). According to data from the Research Institute of Organic Agriculture and the IFOAM (2019), the market for organic foods in Portugal is relatively small and displays low expansion rates, accounting for 21€ million sales in 2017 (2€ per capita). Oppositely, the Norwegian market for organic foods has seen a steady and significant increase, having reached 419€ million sales in 2017 (80€ per capita). Additionally, Norway's GDP per capita (65 603\$) is approximately the double of the GDP per capita in Portugal (33 035\$) (Organisation for Economic Co-operation and Development - OECD, 2019). Moreover, although belonging to the same continent, these two countries are located in distinct positions: Portugal is located in the South and Norway in the North, which strengthens the cultural gap existing between these two countries.

## **1.2. Objective and Relevance**

The recent development of the organic foods market makes it relevant to understand the factors influencing consumers' purchase intention and behaviour. Research is quite consensual regarding the factors that influence consumers' behaviour towards organic foods (Rana & Paul, 2017). However, the priority in which these factors affect consumers seems to be different depending on the country. As a matter of fact, consumer behaviour is cultural bounded and might be contingent on the country (Mooij & Hofstede, 2011). Therefore, it seems pertinent to analyse the impact cultural dimensions have on consumers' purchase intention and behaviour towards organic foods.

Hence, this study aims at (1) analysing the extent to which cultural dimensions impact consumers' purchase intention and behaviour towards organic foods; (2) identifying the factors influencing Portuguese consumers' purchase intention regarding organic foods and (3) pointing out the constructs influencing Norwegian consumers' purchase intention towards organic foods.

The present research is relevant because it focuses on a yet overlooked market segment in Portugal and extends the understanding of the Norwegian one. Additionally, it analyses the impact of cultural dimensions on consumers' purchase intention and behaviour and sheds light on the factors influencing consumers' purchase intention and behaviour towards organic foods in Portugal and in Norway.

Furthermore, this research will tap into some of the previously identified research gaps. For instance, Scalco et al. (2017) pointed out the fact that nearly all studies focused on organic foods solely analysed consumers' purchase intention, bypassing the analysis of the behaviour itself. Therefore, following the recommendations of Yadav and Pathak (2016), our study aims, not only at analysing consumers' purchase intention towards organic foods, but also their behaviour. Moreover, speaking to the concerns of Rana and Paul (2017), this research addresses the impact of cultural dimensions on consumers' intention and behaviour regarding the purchase of organic foods.

Besides contributing to broadening the literature, this study will hopefully provide relevant results and guidelines for companies, governments and regulatory bodies. By understanding the impact and influence of cultural dimensions on consumers' intention to purchase organic foods and on the behaviour itself, managers might be able to more insightfully design country specific communication and marketing strategies and to better identify organic foods consumers' characteristics. As a result of a more assertive approach, companies will not only be able to reduce their costs, but also to contribute to the sustainable expansion of the organic foods market.

### **1.3. Structure**

In section 1, a contextualization of the study and its relevance were evidenced. In the subsequent section, section 2, a summary of the available literature on the topic is provided, clarifying the main underlying concepts and theories, as well as the state of the art. In section 3, the model employed for this study and the respective hypotheses are presented, followed by an overview of the methodology and data collection procedures. Subsequently, a description of the main results and their discussion is delivered in section 4 and 5, respectively. Finally, in section 6, the main contributions of the present study and its policy and managerial implications are highlighted. Moreover, limitations of the present research and suggestions on the avenues for further research are evidenced.

## **Section II | Context**

### **2.1. Literature review**

In what follows, a review of the available literature on the topic of organic foods is provided. First of all, a definition of the concept of organic foods is given, as well as an overview of the worldwide relevant market information, specifically focusing on the Portuguese and Norwegian markets. Secondly, the main theoretical frameworks used to analyse the purchase of organic foods are identified, with a special emphasis given to the TPB, which has been the most widely applied model in understanding consumers' purchase intention towards organic foods and the one employed for the present study. Thirdly, the constructs found to act as main contributors or deterrents to organic foods purchase intention are identified and conceptualized (i.e., health consciousness; environmental concern; price and availability). Lastly, the concept of culture is analysed and the cultural variables described.

#### **2.1.1. Organic foods**

Organic foods refer to natural food items free from any type of artificial chemicals, that is, food items that have been produced without the aid of products such as pesticides, herbicides, fertilizers and antibiotics; and which do not contain preservatives, artificial colouring, flavouring or aromatic substances and genetically modified organisms (European Commission, 2007). Hence, organic foods are believed to be healthier and environmentally friendlier than traditionally grown ones (Lea & Worsley, 2005), therefore being beneficial, not only for the environment, but for society as a whole (IFOAM, 2019). Additionally, organic agriculture directly contributes to the pursuit of the Sustainable Development Goals proposed by the United Nations (IFOAM, 2019). For instance, organic foods' production avoids the use of pesticides and fertilizers, therefore contributing to the reduction of the use of these chemicals and ultimately leading to water and soils preservation (IFOAM, 2019). Moreover, organic farming fosters the usage of renewable resources, hence being more energetically efficient and eventually contributing to slowing down climate change (Chekima, Oswald, Wafa & Chekima, 2017).

Consumers are becoming increasingly aware of health issues and ascertain risks associated with the consumption of certain types of foods (Pino, Peluso & Guido, 2012). Since they lack the addition of chemicals, organic foods are often perceived by consumers as healthier (Rana & Paul, 2017) and more nutritious (Lockie, Lyons, Lawrence & Grice, 2004; Lea & Worsley, 2005) than conventionally grown ones. Moreover, consumers are ever more knowledgeable

about environmental issues, leading them to adopt behaviours that positively impact the environment welfare, such as preferring organic foods (Minton, Spielmann, Kahle & Kim, 2018).

Over the most recent decades, consumers' interest and preference for organic foods has been growing worldwide (Rana & Paul, 2017), leading to a subsequent expansion of the market (Singh & Verma, 2017), as well as of the research on the topic (Scalco et al., 2017).

According to a report from TechSci Research (2017), the worldwide organic foods' market accounted for 110.25\$ billion in 2016 and was forecasted to grow at a CAGR of 16.15% during the period of 2017-2022, reaching the amount of 262.85\$ billion by 2022. Despite the market growth, the dimension of the organic foods' market is still relatively small and quite dissimilar when comparing different countries and regions (IFOAM, 2019). In Europe, it is noticeable that markets in different countries are at different development stages. For instance, Portugal and Norway display relevant discrepancies when it comes to the organic foods market (IFOAM, 2019). According to data from the Research Institute of Organic Agriculture and the IFOAM (2019), the market for organic foods in Portugal is at its early stage, accounting for 21€ million sales in 2017 (2€ per capita). Oppositely, the Norwegian market for organic foods has seen a steady and significant increase, having reached 419€ million sales in 2017 (80€ per capita).

### **2.1.2. Theory of Planned Behaviour**

The TPB is one of the most used social psychological models to predict human behaviour and intention to accomplish that specific behaviour. This cognitive model has been proposed by Ajzen (1991) as an extended version of TRA (Fishbein & Ajzen, 1975). It postulates that intention to perform behaviours of different kinds can be accurately predicted based on the attitude towards the behaviour, subjective norm and PBC (Ajzen, 1991). This framework has been employed in several and diversified contexts and specifically to the context of consumer behaviour and consumer behaviour towards organic foods (Rana, & Paul, 2017). Hence, attitude towards organic foods, subjective norm and PBC are believed to influence consumers' intention to purchase organic foods, which in turn impacts consumers' behaviour. Thus, the stronger the intention a person displays to purchase organic foods, the more likely that person is to actually purchase organic foods.

Intention designates an individual's promptness to perform the behaviour and derives from the influence of three cognitive factors: attitude; subjective norm; and PBC. The first refers to the perception the individual has about the behaviour and is defined as the "*degree to which a*

*person has a favourable or unfavourable evaluation or appraisal of the behaviour in question*” (Ajzen, 1991, p. 188). The second represents the social influence and is defined as the “*perceived social pressure to perform or not perform the behaviour*” (Ajzen, 1991, p. 188). Lastly, PBC denotes “*an individual perceived ease or difficulty in performing a particular behaviour*” (Ajzen, 1991, p. 188) and reflects an individual’s past experience as well as perceived obstacles and barriers to perform a given behaviour. According to the TPB, the more favourable the cognitive constructs are towards the intention to perform certain behaviour, the higher the likelihood of the individual actually performing the behaviour (Ajzen, 1991).

As previously highlighted, PBC is related with an individual’s perception about the easiness of performing the behaviour and the absence of perceived barriers, this is, the extent to which the individual feels able to act upon the behaviour. As a consequence, PBC is pointed out as an important tenet influencing individuals’ behaviour (Ajzen, 1991). Recently, Rana and Paul (2017) identified organic foods’ availability and consumers’ perception of price as some of the main barriers preventing consumers of purchasing organic foods more frequently. As a matter of fact, organic foods are usually more expensive than conventionally grown ones (Singh & Verma, 2017). Similarly, the reduced availability of organic foods and the lack of access to market information are seen as the main struggles by consumers (Singh & Verma, 2017). According to Tarkiainen and Sundqvist (2005), the price premium of organic foods can act as an external control influencing one’s perceived controllability (i.e., price can be seen as an obstacle for economically restrained consumers) and as an internal control affecting one’s perceived self-efficacy (i.e., it contributes to making the process of purchasing organic foods more difficult). Moreover, perceived controllability is also affected by a product’s availability, which is managed by the supply chain. Scalco et al. (2017) recommended considering price and availability within the measurement of the PBC, since these factors are strictly connected with the individual perception one has over his/her ability to purchase organic foods. As previously done by Tarkiainen and Sundqvist (2005), in the present study, PBC was replaced by perceived price and availability.

### **2.1.3. Health Consciousness**

Health consciousness describes the extent to which individuals are aware of their behaviours' healthiness (Jayanti & Burns, 1998), and is related with the effort they put into maintaining actions known to enhance their health (Dutta, Bodie & Basu, 2008). Therefore, the more health conscious a person is, the higher the likelihood for the individual to engage in behaviours known to contribute to health maintenance and/or improvement. Since organic foods are believed to be healthier and more nutritious than conventionally grown ones (Magnusson, Arvola, Hursti, Åberg, Sjöden, 2001; Lea & Worsley, 2005; Lockie et al., 2004), one might expect consumers who are more health conscious to display a stronger intention to purchase organic foods.

Health consciousness has been pointed out by research as a prime reason leading consumers to purchase organic foods (Rana & Paul, 2017). In point of fact, Magnusson et al. (2003) and Yadav and Pathak (2016) found health to be a stronger predictor of purchase intention towards organic foods when compared with environmental motives. However, Tarkiainen and Sundqvist (2005) refute health as a predictor of attitude towards organic foods and Michaelidou and Hassan (2018) found this construct to be the least important determinant for consumers' attitudes towards organic foods.

### **2.1.4. Environmental Concern**

Environmental concern is defined by Dunlap and Jones (2002, p.482) as *“the degree to which people are aware of problems regarding the environment and support efforts to solve them or indicate the willingness to contribute personally to their solution”*. As a consequence, the more concerned a person is about the environment, the more likely the person is to engage in environmentally friendly and sustainable behaviours, such as purchasing green products and organic foods.

Environmental concern has been pointed out by research as one of the major drivers for consumers to purchase organic foods (Hughner, McDonagh, Prothero, Schultz & Stanton, 2007; Magistris & Gracia, 2017). Studies (e.g., Smith & Paladino, 2010) have found this construct to positively and significantly impact consumers' intention to purchase organic foods. However, Yadav and Pathak (2016) found no correlation between environmental concern and organic foods purchase intention.



### 2.1.5. Cultural dimensions

Besides cognitive tenets, decision making is influenced by a wide range of others factors such as psychological aspects (e.g., mood, well-being), sensory cues, as well as several cultural and social influences (Bublitz, Peracchio & Block, 2010). Thus, one might wonder the extent to which cultural dimensions affect sustainable behaviours such as buying organic foods. Could consumers' intention to purchase organic foods be influenced by whether these behaviours are socially expected and approved? Is culture related with consumers' intention to purchase organic foods?

In point of fact, culture is an important construct when trying to explain and understand consumer behaviour (Mooij & Hofstede, 2011). Dimensional models such as the one proposed by Hofstede (1980) are found to be highly suited to apprehend the functioning of culture (Mooij & Hofstede, 2011).

Hofstede (1991, p.5) defined culture as “*the collective programming of the mind that distinguishes the members of one group or category of people from others*”. Culture influences people's way of thinking, feeling and acting; in sum, it shapes individuals' perception of the world and their surroundings. Therefore, people belonging to different countries or regions might have distinct perceptions and attitudes towards the same issue.

Hofstede (2011) suggests culture to be formed by six dimensions, namely: Power distance (i.e., the extent to which the members of a society accept an unequal distribution of power among themselves); Collectivism/Individualism (i.e., the strength of the existing ties among the different members of a society); Masculinity/Femininity (i.e., the distribution of roles and the dominant values in a society); Uncertainty avoidance (i.e., how well people cope with anxiety and the extent to which the members of a society need to make life predictable and controllable); Long-term/Short-term orientation (i.e., the way individuals of a society perceive time and the impact of their actions); and Indulgence/Restrain (i.e., the extent to which society allows free gratification of people's drives and emotions).

Among the various cultural dimensions proposed by Hofstede, collectivism/individualism and long-term/short-term orientation are thought to be the ones that mostly influence consumers' intention and behaviour relatively to green products such as organic foods (Cho, Thyroff, Rapert, Park & Lee, 2013; Sreen et al., 2018).

### ***2.1.5.1. Collectivism / Individualism***

As previously mentioned, collectivism/ individualism dimension refers to the preference a society has towards the social framework, this is, the extent to which a society values more loosely or tightly-knit relationships among its members (Hofstede, 1980). In highly individualistic cultures, the preference for a loosely-knit social framework is predominant and the need for a group approval is practically inexistent (Hofstede, 1980). Contrarily, in highly collectivistic cultures, people tend to prefer a tightly-knit social framework, in which individuals are integrated in strong and cohesive in-groups (Hofstede, 1980). All in all, individuals who display a collectivistic perspective are more likely to give priority to group goals over individual ones and to aim at preserving group harmony even when compromising personal needs (Triandis, 2004).

Previous research (e.g., McCarty and Shrum, 1994) demonstrated that individuals' collectivistic orientation significantly influences people's intention to engage in environmental friendly behaviours (e.g., recycling), through the mediation effect of attitude. As a matter of fact, people who demonstrate a tendency for collectivism tend to be driven by social norms and are more willing to share scarce resources with their peers (Sinha and Verma, 1987). Hence, collectivism is believed to foster environmentally friendly behaviours, while individualism is related with the pursuit of individual benefits such as health outcomes.

Sreen et al. (2018) studied the impact of collectivism on Indian consumers' green purchase intention and concluded that this cultural dimension had a significant direct effect on attitude, subjective norm and perceived behavioural control. Additionally, these authors also demonstrated collectivism to indirectly influence consumers' green purchase intention.

Finally, Moon, Chadee and Tikoo (2008) found that consumers in a collectivist society would more willingly pay a premium for products perceived as beneficial for the society as a whole, when compared to their counterparts in individualistic societies.

### ***2.1.5.2. Long-term / Short-term orientation***

As previously highlighted, the long-term/short-term orientation dimension characterises the way people perceive the future impact of their actions. In long-term oriented cultures, people tend to value thrift and effort as a way to prepare for the future, while in short-term oriented cultures, people prefer to maintain time-honoured traditions, with a focus on the past (Hofstede, 1991). Hence, long-term oriented cultures are perceived as more pragmatic, while short-term oriented ones are perceived as more normative (Hofstede, 1991).

Minton et al. (2018) analysed the influence of a country's pragmatism level in sustainable consumption. In their study, Minton et al. (2018) focused on three countries from three different continents: Japan (high in pragmatism, score=88); France (moderate in pragmatism, score=63), and the United States (low in pragmatism, score=26). According to their results, individuals in countries low on pragmatism are less likely to perform self-enhancing sustainable behaviours, such as purchasing organic foods. The findings of Barbarossa, Beckmann, Pelsmacker, Moons & Gwozdz (2015) support this conclusion, emphasizing that people in long-term oriented countries demonstrate higher predisposition to buy eco-friendly products, compared to people in short-term oriented ones.

Results from Sreen et al. (2018) evidenced the significant influence of long-term orientation on subjective norm and perceived behavioural control, but revealed that this cultural dimension did not impact attitude, contradicting previous research.

As organic foods are perceived to be more environmentally friendly and healthier options (Aertsens, 2009), one can expect consumers' intention to purchase organic foods to be more relevant in long-term oriented countries.

## Section III | Method

In this section, the research model applied in the present study is introduced along with the respective research hypotheses. Moreover, the methodology employed to reach the proposed objectives is described. Firstly, the research goal, the research model and the research hypotheses are identified. Secondly, the methodology employed is pinpointed, as well as the main reasons for its choice. Thirdly, an overview of the questionnaire and scales used to measure each construct is provided, followed by the sampling method, sample requirements and inclusion criteria. Finally, analyses performed are described.

### 3.1. Research Goal and Methodology

The main goal of the present research is to investigate the extent to which cultural dimensions (i.e., collectivism/individualism and long/short-term orientation) impact Portuguese and Norwegian consumers' purchase intention and behaviour towards organic foods.

To the best of our knowledge: i) no study has previously created and studied the path from cultural dimensions to health, environmental and cognitive tenets, and then to intention to purchase organic foods and finally to behaviour; ii) few studies (e.g., Liobikiené et al., 2016; Tarkiainen and Sundqvist, 2005) have measured the behaviour itself (i.e., purchasing organic foods); iii) no study has tested the proposed model under analysis (see Figure 1); iv) no study has used structural models to test invariance between two groups with different characteristics (in this study, Portugal and Norway).

Since consumer behaviour is cultural bounded (Mooij, 2015), it seems interesting to understand how cultural dimensions influence consumers' intention and behaviour in the context of organic foods. Besides, the majority of previous studies have merely focused on consumers' intention (Yadav and Pathak, 2016), bypassing the analysis of the behaviour. Finally, research in the context of organic foods is quite scarce in Portugal and in Norway (Vittersø and Tangeland, 2015; Marreiros, Lucas and Röhrich, 2010). As a matter of fact, no study employing a model based on the TPB in the context of organic foods was found for Portugal or Norway. Hence, this study aims at tapping into these research gaps and further extend the understanding on how the purchase of organic foods is deemed by cultural, cognitive, health and environmental factors, specifically in Portugal and Norway. Hopefully, the findings of this study will provide valuable insights for marketers and governments to develop better suited marketing strategies and guidelines focused on the organic foods market development.

In figure 1, the extended TPB model tested in this study is presented.

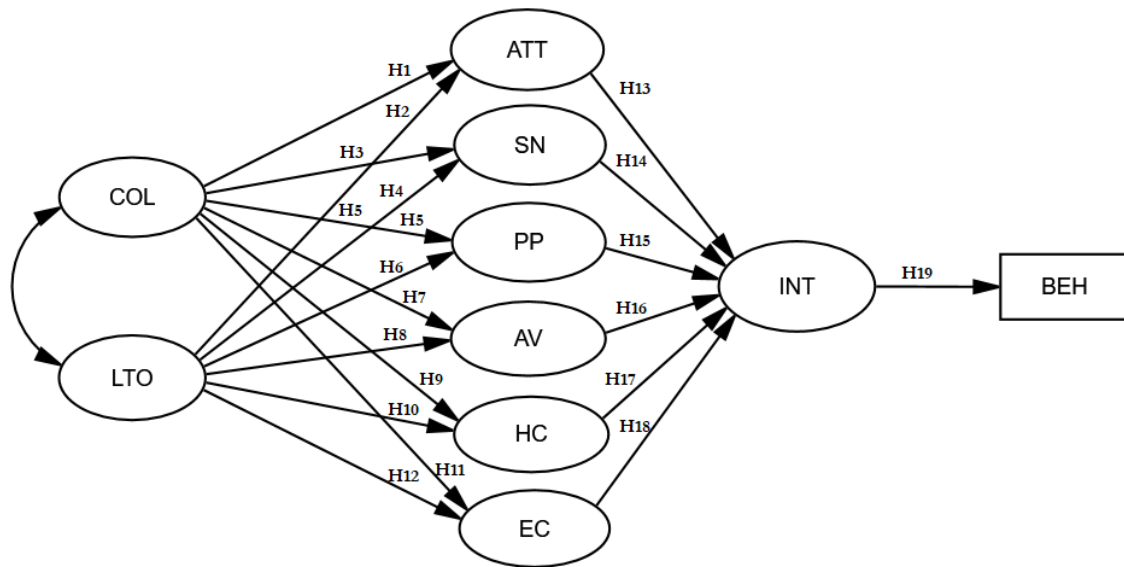


Figure 1 - Proposed Model

In order to operationalise the model above and following the discussion in the literature review section, the following hypotheses were formulated:

Table 1 - Hypotheses

Hypotheses	
<b>H1</b>	Collectivism positively impacts consumers' attitude towards organic foods.
<b>H2</b>	Long-term orientation positively impacts consumers' attitude towards organic foods.
<b>H3</b>	Collectivism positively impacts consumers' subjective norm towards organic foods.
<b>H4</b>	Long-term orientation positively impacts consumers' subjective norm towards organic foods.
<b>H5</b>	Collectivism positively impacts consumers' perception of price organic foods.
<b>H6</b>	Long-term orientation positively impacts consumers' perception of price organic foods.
<b>H7</b>	Collectivism positively impacts consumers' perception of availability towards organic foods.
<b>H8</b>	Long-term orientation positively impacts consumers' perception of availability towards organic foods.
<b>H9</b>	Collectivism negatively impacts consumers' health consciousness towards organic foods.
<b>H10</b>	Long-term orientation positively impacts consumers' health consciousness towards organic foods.
<b>H11</b>	Collectivism positively impacts consumers' environmental concern towards organic foods.
<b>H12</b>	Long-term orientation positively impacts consumers' environmental concern towards organic foods.
<b>H13</b>	Attitude towards organic foods positively influences their intention to purchase organic foods.
<b>H14</b>	Subjective norm positively influences consumers' intention to purchase organic foods.
<b>H15</b>	Price negatively influences consumers' intention to purchase organic foods.
<b>H16</b>	Availability positively influences consumers' intention to purchase organic foods.
<b>H17</b>	Health consciousness positively influences consumers' intention towards organic foods.
<b>H18</b>	Environmental concern positively influences consumers' intention towards organic foods.
<b>H19</b>	Intention towards organic foods positively influences consumer purchase behaviour.

In addition, the hypothesized structural model will be tested between both markets, assessing its differences and similarities. It may be speculated that the model will have a good fit in both countries. Regarding differences in organic food markets between Portugal and Norway, it is theorized that the model will not be invariant, due to the existent previous identified dissimilarities between the two analysed countries.

In order to meet this study's goals, a quantitative method through surveys was used. Quantitative methods allow the examination of the effects of specific variables (independent variables) on an outcome of interest (dependent variables). Additionally, quantitative methods allow to measure variables that are not objective, such as subjective norm, attitude and intention (Malhotra & Birks, 2007). Surveys are helpful in reducing responses biases, as participants are kept anonymous, hence being more prone to provide their sincere opinion (Cooper & Schindler, 2008). Additionally, its ease of administration makes it simpler to reach a large number of people (Malhotra, 2004).

### **3.2. Survey**

The questionnaire was divided in three main sections: i) socio-demographic questions such as age, gender, academic qualifications, household size, occupation and a question about whether the participant was responsible for buying groceries for the household; ii) items concerning TPB cognitive constructs (i.e., attitude and subjective norm), price, availability, health consciousness and environmental concern aiming at evaluating consumers' intentions and behaviour towards organic food, and; iii) items to evaluate the impact of culture, specifically the collectivism and long-term orientation dimensions.

The questionnaire was built upon several studies focused on marketing, consumer behaviour, green products, organic products and culture. All scales were adapted to the purpose and the context of this study.

According to the guidelines proposed by several authors (e.g., Hair, Black, Babin, & Anderson, 2014), a minimum of three items is required to saturate the latent variable. Therefore, a third item ("The price for organic foods is fair.") was specifically developed and added to the scale measuring Price and two items were specifically developed and added to the scale measuring Availability. ("It is easy to find organic foods"; "It is easy to have access to organic foods."). All items from the different constructs were evaluated using a five-point Likert-type scale 1 ("strongly disagree") to 5 ("strongly agree"), except for behaviour, which was categorized into five levels with 0 ("0 times"), 1 ("1-2 times"), 2 ("3-4 times"), 3 ("5-6 times"), and 4 ("7 or

more”), in order to improve data distribution. The only item to have a reverse score was PP1 (“Organic foods are expensive”).

Table 2 presents the summary of the questionnaire items and respective source.

**Table 2 - Questionnaire items and respective source**

<b>Construct</b>		<b>Description</b>	<b>Adapted from</b>
<b>Collectivism</b>	COL1	Individuals should sacrifice self-interest for the group.	Yoo et al., 2015
	COL2	Individuals should stick with the group even through difficulties.	
	COL3	Group welfare is more important than individual rewards.	
	COL4	Group success is more important than individual success.	
	COL5	Individuals should only pursue their goals after considering the welfare of the group.	
	COL6	Group loyalty should be encouraged even if individual goals suffer.	
<b>Long-term orientation</b>	LTO1	Careful management of money. (Thrift)	Yoo et al., 2015
	LTO2	Going on resolutely in spite of opposition. (Persistence)	
	LTO3	Personal steadiness and stability.	
	LTO4	Long-term planning.	
	LTO5	Giving up today’s fun for success in the future.	
	LTO6	Working hard for success in the future.	
<b>Health consciousness</b>	HC1	I choose food carefully to ensure good health.	Tarkianien and Sundqvist, 2005
	HC2	I think of myself as a health-conscious consumer.	
	HC3	I often think about health issues.	
<b>Environmental concern</b>	EC1	Humans are severely abusing the environment.	Yadav and Pathak, 2016
	EC2	Humans must maintain the balance with nature in order to survive.	
	EC3	Human interferences with nature often produce disastrous consequences.	
<b>Attitude</b>	ATT1	Buying organic foods is a good idea.	Yadav and Pathak, 2016
	ATT2	Buying organic foods is a wise choice.	
	ATT3	I like the idea of buying organic foods.	
	ATT4	Buying organic foods would be pleasant.	
<b>Subjective norm</b>	SN1	People who are important to me think that I should purchase organic foods.	Paul et. al, 2016
	SN2	People who are important to me would want me to purchase organic foods.	
	SN3	People whose opinions I value prefer that I purchase organic foods.	
	SN4	My friends’ positive opinion influences me to purchase organic foods.	
<b>Perceived price</b>	PP1	Organic foods are expensive.	Sighn and Verma, 2017
	PP2	The price of organic foods is in accordance with its benefits.	
	PP3	The price for organic foods is fair.	
<b>Availability</b>	AV1	Organic foods are always sufficiently available.	Tarkianien and Sunqvist, 2005
	AV2	It is easy to find organic foods.	
	AV3	It is easy to have access to organic foods.	
<b>Purchase Intention</b>	INT1	I intend to buy organic products in the near future.	Lee, Hsu, Han and Kim, 2010
	INT2	I plan to buy organic foods in the future.	
	INT3	I will make an effort to buy organic foods in the future.	
<b>Behaviour</b>	BEH1	How many times have you bought organic foods in the last month?	

For translating and adapting items from the several constructs under analysis from the original language (English) into Portuguese and Norwegian, the methodological procedures suggested by Banville, Desrosiers & Genet-Volet (2000) were adopted. The translation/back translation technique (see Brislin, 1970) proposed by Vallerand (1989) was used. Hence, the questionnaire was translated to participants' native languages (i.e., Portuguese and Norwegian), reviewed by native speakers of both languages and then back translated into the original language (i.e., English).

A pilot questionnaire was tested among a small sample of 30 individuals of the population under analysis both in Norway and in Portugal in order to ensure reliability. The questionnaire was found to have an adequate size and small adjustments were made to both versions on the basis of participants' recommendations.

### **3.3. Sampling**

This study adopted a convenience sampling method, in which respondents were randomly chosen from a student population (Malhotra & Birks, 2007), hence preventing the results from being extended to the overall population (Kline, 2015). Convenience sampling not only helps reducing bias, since each element has an equal probability of being selected, but also reveals itself to be a practical method widely used by researchers (Malhotra & Birks, 2007).

As far as it concerns the sample dimension, Malhotra & Birks (2007) suggest a minimum of 200 participants and consider acceptable a sample of 300 to 500 participants. Hair et al. (2010) defend that for SEM analyses, a sample between 100 and 500 is required. Additionally, Kline (2015) suggests a minimum of 5 observations per parameter to estimate, considering 10 observations as acceptable and 15 as the recommended. The model in this study has 10 constructs, 36 items and 20 parameters to be estimated. Thus, following Kline (2015), a minimum of 300 participants would be needed in each one of the Portuguese and Norwegian samples. Having in mind the recommendations of Hair et al. (2010), Kline (2015) and Malhotra & Birks (2007) both the Portuguese ( $n=448$ ) and the Norwegian ( $n=468$ ) samples are found to have an adequate number of participants.

As inclusion criteria, participants needed to be students, aged between 18 and 30 years old and be Portuguese or Norwegian native speakers. Student samples are extremely common in cross-cultural studies due to the facility of recruitment, lower cost of administration and assumed lower response bias (Hanel & Vione, 2016). Students are believed to be a quite homogeneous population, consequently reducing the variability when analysing samples from different countries (Hanel & Vione, 2016).



### **3.4. Data collection**

In order to collect data for this study, participants were randomly approached at the universities campuses during breaks and classes, briefed about the topic of the survey and requested to voluntarily answer the questionnaire. Collecting surveys face to face helps to more easily achieve high response rates (Jones, Baxter, & Khanduja, 2013).

All participants signed an informed consent form and anonymously and voluntarily answered the questionnaire. The same procedure took place in both countries.

In Norway, data was collected from the 4<sup>th</sup> of November until the 3<sup>rd</sup> of December 2018. A total of 475 questionnaires was gathered, from which 7 were discarded due to an extreme amount of missing values. From the total amount of questionnaires collected in Norway, 98.5% of the surveys were used for analysis. In Portugal, the process of data collection took place between the 4<sup>th</sup> and the 20<sup>th</sup> of February 2019. A total of 450 questionnaires was gathered, from which 2 were discarded due to an extreme amount of missing values. From the total amount of questionnaires collected in Portugal, 99.6% of the surveys were used for analysis. The total sample from both countries together consists of 916 questionnaires (PT:  $n=448$ ; NO:  $n=468$ ).

### **3.5. Data Analysis**

#### **3.5.1. CFA and SEM Analysis**

Data was screened for missing values and the 10 questionnaires with less than 5% of missing values were filled by using the multiple imputation procedures (Allison, 2000) in IBM SPSS Statistics version 23.0. Questionnaires with more than 5% of missing values were excluded. Possible univariate ( $z > 3.00$ ) and multivariate ( $D^2 = p1 < .001, p2 < .001$ ) outliers were also left out from the analysis, as recommended by Byrne (2010). After the adjustments, 468 Norwegian questionnaires and 448 Portuguese questionnaires were included in the final sample. Descriptive statistics (i.e., means and standard deviations and correlations) were analysed for all variables.

A two-step maximum likelihood analysis using IBM SPSS AMOS v23 was performed, following Kline's (2015) recommendations. Firstly, a Confirmatory Factor Analysis (CFA) was conducted, testing the psychometric proprieties of the model. Convergent and discriminant validity of the factors regarding the full model were also examined. Average Variance Extracted (AVE) to evaluate convergent validity was calculated and scores above  $>0.50$  were defined as acceptable (Byrne, 2010). Discriminant validity was confirmed when AVE scores

were higher than the squared correlation across constructs of the measurement model (Hair et al., 2014). For composite reliability,  $>0.70$  was used as cut-off value (Kline, 2015).

Secondly, Structural Equation Model (SEM) was performed in order to analyse the relations among all constructs by creating regression paths, hence identifying direct and indirect effects.

Analysis of both CFA and SEM were performed according to the traditional absolute and incremental indexes, namely: Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Standard Root Mean Residual (SRMR), Root Mean Square Error of Approximation (RMSEA) and its Confidence Interval of 90% (CI: 90%). For these indexes, scores of CFI and TLI  $\geq 0.90$ , SRMR and RMSEA  $\leq 0.8$  were considered as acceptable (Byrne, 2010; Hair et al., 2014; Marsh, Hau & Wen, 2004).

### **3.5.2. Multi-group Analysis**

Invariance analysis of the structural model between Norwegian and Portuguese respondents was performed following the recommendations of previous authors (Byrne, 2010; Cheung & Rensvold, 2002). After ensuring that the structural model presented a good fit to the data in both samples, differences between unconstrained model and measurement weights, structural weights, measurement intercepts, structural residuals, and measurement residuals were analysed. Specifically, differences in CFI ( $\Delta CFI$ )  $< 0.01$  were considered indicative of structural invariance (Cheung & Rensvold, 2002).

## Section IV | Results

The present section begins by presenting an overview of the sociodemographic profile of the participants in this study (section 4.1), followed by the preliminary analysis of the different constructs (section 4.2) and the results from CFA, SEM and multi-group analyses performed in IBM SPSS AMOS 23.0.

### 4.1. Sample characteristics

Information concerning participants' sociodemographic background is summarized in Table 3. The most evident difference regards the household: in Portugal, participants mostly live with other people (e.g., family), while in Norway the majority of the participants live on their own. As a consequence, in Portugal only 30.6% of the respondents were responsible for purchasing groceries, while in Norway 78.8% of respondents bought the groceries for the household.

**Table 3 - Sociodemographic features – Total, Portuguese and Norwegian samples**

		Total		Portugal		Norway	
		N	(%)	N	(%)	N	(%)
<b>Age</b>	18 – 21	412	(45.2)	215	(48)	197	(42)
	22 – 26	424	(46.3)	189	(42.2)	235	(50.2)
	27 – 30	80	(8.5)	44	(9.8)	36	(7.8)
<b>Gender</b>	Female	630	(68.8)	321	(71.7)	309	(66)
	Male	286	(31.2)	127	(28.3)	159	(44)
<b>Academic qualification<sup>1</sup></b>	High school	531	(58.0)	232	(51.8)	299	(63.9)
	Graduate	329	(35.9)	169	(37.7)	160	(34.2)
	Post graduate	56	(6.1)	47	(10.5)	9	(1.9)
<b>Household</b>	1 person	287	(31.3)	55	(12.3)	232	(49.6)
	2-3 people	376	(41.0)	210	(46.9)	166	(35.5)
	4-5 people	234	(25.5)	173	(38.6)	61	(13.0)
	>5 people	19	(2.1)	10	(2.2)	9	(1.9)
<b>Occupation</b>	Student	401	(43.8)	293	(65.4)	108	(23.1)
	Part-time	448	(48.9)	88	(19.6)	360	(76.9)
	Full-time <sup>2</sup>	67	(7.3)	67	(15)	-	-
<b>Responsibility<sup>3</sup></b>	Yes	506	(55.2)	137	(30.6)	369	(78.8)
	No	410	(44.8)	311	(69.4)	99	(21.2)

<sup>1</sup> Academic qualification refers to the degree respondents had already completed when answering the survey. Hence, high school refers to students that are currently studying for their Bachelor degree, Graduate refers to students that are currently studying for their Master's degree and Post graduate for their PhD.

<sup>2</sup> Full-time concerns people who worked full-time, while pursuing their academic studies.

<sup>3</sup> Responsibility identifies if the person is responsible for purchasing groceries for the household or not.

## 4.2. Preliminary Analysis

Mean, standard deviations, and bivariate correlations were examined for all constructs for the total sample, for the Portuguese and the Norwegian ones separately. Results are respectively presented in Table 4, 5 and 6.

As far as it concerns the results for the total sample, environmental concern was the variable with the highest mean value, followed by long-term orientation. Oppositely, subjective norm displayed the smallest mean value. Long-term orientation was found to be positively and significantly correlated with all the variables except availability, price and behaviour. Collectivism was found to be positively and significantly associated with all the variables except availability and behaviour. Additionally, all the factors besides availability were found to be positively and significantly correlated with attitude. Attitude strongest correlation was with intention (.72\*\*). For more details see Table 4.

**Table 4 - Mean, Standard Deviations, Range, and Correlations**

Factors	M	SD	Range	1	2	3	4	5	6	7	8	9	10
1. Attitude	3.78	.76	1-5	1									
2. Subjective Norm	2.34	.89	1-5	.43**	1								
3. Availability	3.04	.76	1-5	.03	.04	1							
4. Price	2.49	.67	1-5	.16**	.23**	.24**	1						
5. Health Consciousness	3.66	.75	1-5	.29**	.25**	.05	.04	1					
6. Environmental Concern	4.13	.73	1-5	.40**	.26**	.14**	.01	.31**	1				
7. Collectivism	3.22	.64	1-5	.09**	.25**	-.01	.10**	.08*	.16**	1			
8. Long-term Orientation	4.07	.48	1-5	.17**	.09**	-.04	-.06	.25**	.19**	.12**	1		
9. Intention	3.39	.98	1-5	.72**	.54**	.03	.24**	.40**	.44**	.16**	.14**	1	
10. Behaviour			0-4	.33**	.25**	.13**	.17**	.29**	.17**	.03	.02	.43**	1

Note: M = Mean; SD = Standard Deviation; \*  $p < 0.01$

Regarding the Portuguese sample, environmental concern was the variable with the highest mean value, followed by attitude and health consciousness. Oppositely, price displayed the smallest mean value. Attitude was found to be positively and significantly correlated with all constructs, with the strongest correlation being with intention. Long-term orientation was found to be significantly correlated with attitude, health consciousness, environmental concern and collectivism. Among the ten possible correlations, collectivism was positively and significantly correlated with attitude, subjective norm, environmental concern and intention. Behaviour strongest correlations were with intention, health consciousness and attitude, respectively. For more details see Table 5.

**Table 5 - Mean, Standard Deviations, Range, and Correlations - Portuguese Sample**

<b>Factors</b>	M	SD	Range	1	2	3	4	5	6	7	8	9	10
1. Attitude	3.96	.68	1-5	1									
2. Subjective Norm	2.65	.84	1-5	.39**	1								
3. Availability	2.80	.72	1-5	.15**	.19**	1							
4. Price	2.53	.67	1-5	.17**	.13**	.35**	1						
5. Health Consciousness	3.85	.73	1-5	.34**	.19**	.18**	.02	1					
6. Environmental Concern	4.52	.57	1-5	.40**	.09*	-.02	-.07	.20**	1				
7. Collectivism	3.28	.67	1-5	.11*	.25**	.07	.08	.07	.13**	1			
8. Long-term Orientation	4.15	.44	1-5	.18**	.07	-.02	-.04	.15**	.17**	.15**	1		
9. Intention	3.79	.82	1-5	.75**	.41**	.24**	.22**	.41**	.32**	.14**	.08	1	
10. Behaviour			0-4	.33**	.26**	.16**	.15**	.34**	.16**	.07	.01	.37**	1

Note: M = Mean; SD = Standard Deviation; \*  $p < 0.01$

Concerning the Norwegian sample, long-term orientation was the variable with the highest mean value, followed by environmental concern and attitude. Oppositely, subjective norm displayed the smallest mean value. Attitude was found to be positively and significantly correlated with all constructs besides availability and collectivism and with the strongest correlation being with intention. Long-term orientation was found to be significantly correlated with attitude, price and health consciousness. Among the ten possible correlations, Collectivism was positively and significantly correlated with subjective norm, price, environmental concern and intention. Similarly to the Portuguese sample, behaviour strongest correlations were with intention, health consciousness and attitude, respectively. For more details see Table 6.

**Table 6 - Mean, Standard Deviations, Range, and Correlations - Norwegian Sample**

<b>Factors</b>	M	SD	1	2	3	4	5	6	7	8	9	10
1. Attitude	3.62	.77	1									
2. Subjective Norms	2.06	.85	.38**	1								
3. Availability	3.27	.72	.06	.14**	1							
4. Price	2.45	.66	.13**	.31**	.20**	1						
5. Health Consciousness	3.49	.72	.18**	.18**	.09	.03	1					
6. Environmental Concern	3.75	.65	.27**	.11*	.06	.03	.23**	1				
7. Collectivism	3.16	.61	.04	.22**	-.03	.10*	.07	.15**	1			
8. Long-term Orientation	3.99	.50	.10*	.01	.05	-.10*	.28**	.08	.07	1		
9. Intention	3.00	.94	.68**	.52**	.13**	.26**	.27**	.26**	.13**	.07	1	
10. Behaviour			.33**	.22**	.15**	.19**	.23**	.19**	-.02	.02	.52**	1

Note: M = Mean; SD = Standard Deviation; \*  $p < 0.01$

Figure 2 exhibits a comparison between mean values for each variable under analysis in both samples. Means corresponding to the Portuguese (PT) sample displayed higher values for all variables except availability (AV), when compared to the Norwegian (NO) sample. Specifically, environmental concern (EC) exhibited the highest score among the Portuguese sample, and long-term orientation (LTO) among the Norwegian. Subjective norm (SN) achieved the lowest mean value in both samples. For more details, please refer to the figure below.

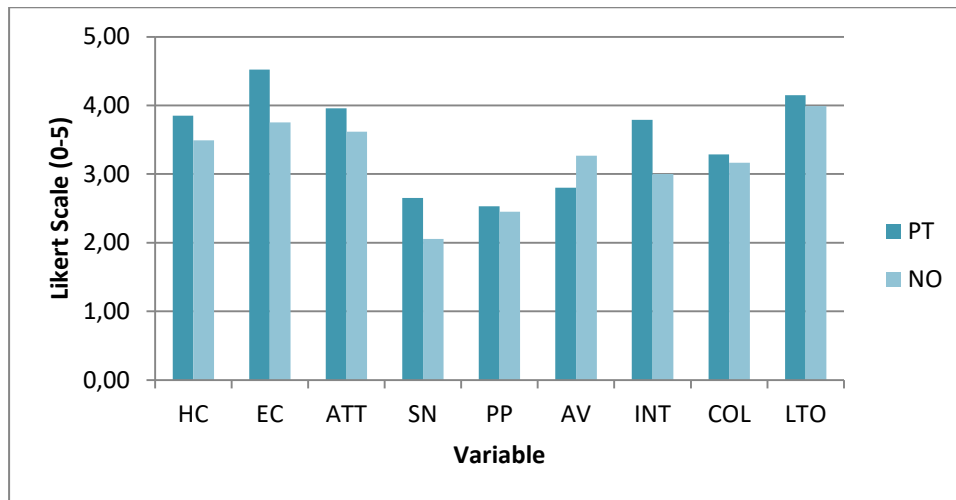


Figure 2 - Construct mean values for Portuguese and Norwegian

### 4.3. Confirmatory Factory Analysis

The CFA models displayed adequate fit to the data for all three samples (i.e., the total sample, the Portuguese sample and the Norwegian sample). The same was verified for SEM models, except for the Norwegian sample, which exhibited TLI and CFI values closed to cut-off guidelines ( $>.90$ ). Nevertheless, RMSEA and SRMR values for this sample were below the cut-off standards ( $<.80$ ) suggesting adequate fit. Goodness-of-fit indexes of all models under analysis are displayed in Table 7.

Table 7 - Goodness-of-Fit indexes for CFA and SEM models

	$\chi^2$	<i>Df</i>	$\chi^2/df$	CFI	TLI	SRMR	RMSEA	CI 90%		B-S p
								LO	HI	
<b>CFA</b>										
Total sample	1234.55	420	2.939	.933	.920	.0541	.046	.043	.049	<0.001
Portuguese	629.310	420	1.498	.964	.958	.0480	.033	.028	.039	<0.001
Norwegian	877.846	420	2.095	.914	.900	.0559	.049	.044	.053	<0.001
<b>SEM</b>										
Total sample	1570.596	444	3.537	.907	.896	.0743	.053	.050	.056	<0.001
Portuguese	909.465	444	2.048	.921	.912	.0705	.048	.044	.053	<0.001
Norwegian	1093.728	444	2.463	.879	.865	.0676	.056	.052	.060	<0.001

Note:  $\chi^2$  = chi-square; *df* = degrees of freedom;  $\chi^2/df$  = normative chi-square; CFI = comparative fit index; TLI = Tucker-Lewis index; SRMR = standardized root means square residual; RMSEA = root mean squared error of approximation; CI 90% = confidence interval of RMSEA; B-S p = Bollen-Stine bootstrap significance; CFA = Confirmatory Factor Analysis; SEM = Structural Equation Modelling.

Composite Reliability was used instead of Alpha Cronbach due to the fact that recent research defends the better suitability of this measure in providing higher estimates of reliability when compared to Cronbach's Alpha (McNeish, D., 2017). Composite Reliability was above acceptable for all factors except for Price (.67) and Long-term orientation (.63), as exhibited in Table 5. Nevertheless, AVE scores were above guidelines (<.50), hence achieving convergent validity. In addition, the squared correlations ( $r^2$ ) were below AVE values, thus displaying discriminant validity. In sum, the theoretical model represents adequate validity and reliability. Details for convergent and discriminant validity and are stated in Table 8.

**Table 8 - Composite Reliability, Average Mean Extracted and Squared Correlations**

	CR	AVE	$r^2$											
			1	2	3	4	5	6	7	8	9	10		
1. Attitude	.87	.78	1											
2. Subjective Norms	.87	.79	.23	1										
3. Availability	.80	.75	.01	.01	1									
4. Price	.67	.63	.10	.10	.07	1								
5. Health Consciousness	.74	.69	.11	.07	.01	.01	1							
6. Environmental Concern	.76	.71	.23	.09	.04	.01	.11	1						
7. Collectivism	.78	.64	.01	.06	.01	.02	.01	.03	1					
8. Long-term Orientation	.63	.54	.09	.02	.02	.01	.15	.19	.01	1				
9. Intention	.90	.87	.66	.33	.01	.13	.20	.27	.03	.08	1			
10. Behaviour	-	-	.13	.08	.03	.04	.11	.03	.01	.01	.20	1		

Note: CR = Composite Reliability; AVE = Average Mean Extracted;  $r^2$  = squared correlation.

#### 4.4. Direct and indirect effects among constructs

Path estimates of SEM for the total sample and both individual samples (i.e., Portuguese and Norwegian) are respectively displayed in the tables 9, 10 and 11.

As far as it concerns the total sample, all path estimates were positive and significant, excepting the paths from collectivism to attitude, availability and health consciousness; long-term orientation to availability and availability to intention. Collectivism had its strongest impact on subjective norm and long-term orientation was found to highly influence environmental concern, attitude and health concern, accounting for an explained variance of 44%, 37% and 37% respectively. Attitude was the strongest predictor of purchase intention, with an explanatory power of 36% and intention the strongest variable impacting behaviour, with an explanatory power of 20%. For more details refer to Table 9.

Regarding the Portuguese sample, collectivism failed to reveal any significant impact on any of the constructs. Contrarily, long-term orientation was found to influence all constructs except the price. Long-term orientation had its strongest impact on attitude, environmental concern and health concern, accounting for an explained variance of 65%, 26% and 25% respectively.

Attitude was the best predictor of purchase intention, with an explanatory power of 55%. Similarly, intention was the strongest construct influencing behaviour, with an explanatory power of 15%. For more details refer to Table 10.

Concerning the Norwegian sample, collectivism only significantly impacted environmental concern. On the other hand, long-term orientation was found to influence all constructs except the price. Long-term orientation had its strongest impact on attitude, subjective norm and price, accounting for an explained variance of 45%, 35% and 33% respectively. Attitude was the strongest predictor of purchase intention, with an explanatory power of 31%. Similarly, intention was the best construct at predicting behaviour, with an explanatory power of 28%. For more details refer to Table 11.

**Table 9 - Path estimates among constructs - Total sample**

Path	B	R <sup>2</sup>	CI-95%		P
			LO	HI	
Collectivism → Attitude	.10	.01	-.01	.20	.148
Collectivism → Subjective Norms	.24	.06	.14	.32	<.001
Collectivism → Availability	.03	.00	-.04	.11	.455
Collectivism → Price	.15	.02	.05	.23	.014
Collectivism → Health Consciousness	.04	.00	-.05	.12	.493
Collectivism → Environmental Concern	.15	.02	.04	.24	.031
Long-term Orientation → Attitude	.61	.37	.48	.72	.002
Long-term Orientation → Subjective Norms	.43	.18	.30	.54	.002
Long-term Orientation → Availability	-.09	.01	-.20	.01	.160
Long-term Orientation → Price	.16	.03	.01	.44	.071
Long-term Orientation → Health Consciousness	.52	.27	.44	.61	<.001
Long-term Orientation → Environmental Concern	.67	.44	.59	.75	<.001
Attitude → Intention	.60	.36	.54	.66	<.001
Subjective Norms → Intention	.23	.05	.18	.28	<.001
Availability → Intention	.00	.00	-.05	.04	.912
Price → Intention	.11	.01	.06	.17	<.001
Health Consciousness → Intention	.15	.02	.09	.20	<.001
Environmental Concern → Intention	.12	.02	.07	.18	<.001
Intention → Behaviour	.45	.20	.40	.49	<.001

Note:  $\beta$  = estimate; R<sup>2</sup> = explained variance; CI95% = Confidence Interval; *p* = level of significance; LO = lower bound; HI = Higher Bound.



**Table 10 - Path estimates among constructs - Portuguese sample**

Path	B	R <sup>2</sup>	CI-95%		P
			LO	HI	
Collectivism → Attitude	.10	.01	-.61	.26	.780
Collectivism → Subjective Norm	.22	.05	-.04	.34	.143
Collectivism → Availability	.10	.01	-.07	.21	.321
Collectivism → Price	.11	.01	-.09	.25	.365
Collectivism → Health Consciousness	.01	.00	-.23	.14	.975
Collectivism → Environmental Concern	.10	.01	-.13	.25	.398
Long-term Orientation → Attitude	.81	.65	.38	1.14	<.001
Long-term Orientation → Subjective Norm	.38	.15	.11	.56	.006
Long-term Orientation → Availability	.20	.04	.03	.40	.069
Long-term Orientation → Price	.25	.06	-.04	.45	.197
Long-term Orientation → Health Consciousness	.50	.25	.38	.69	<.001
Long-term Orientation → Environmental Concern	.51	.26	.38	.66	<.001
Attitude → Intention	.74	.55	.63	.81	.010
Subjective Norm → Intention	.11	.01	.04	.19	.026
Availability → Intention	.08	.01	.01	.15	.067
Price → Intention	.06	.00	-.02	.15	.188
Health Consciousness → Intention	.15	.02	.06	.22	.007
Environmental Concern → Intention	-.02	.00	-.12	.07	.686
Intention → Behaviour	.39	.15	.32	.46	<.001

Note:  $\beta$  = estimate; R<sup>2</sup> = explained variance; CI-95% = Confidence Interval; p = level of significance; LO = lower bound; HI = Higher Bound.

**Table 11 - Path estimates among constructs - Norwegian sample**

Path	B	R <sup>2</sup>	CI-95%		P
			LO	HI	
Collectivism → Attitude	.15	.02	-.21	.92	.349
Collectivism → Subjective Norm	.32	.10	-.00	1.05	.104
Collectivism → Availability	-.03	.00	-.18	.26	.997
Collectivism → Price	.23	.05	-.04	.97	.134
Collectivism → Health Consciousness	.08	.01	-.12	.35	.491
Collectivism → Environmental Concern	.25	.06	.04	.59	.064
Long-term Orientation → Attitude	.67	.45	.26	.90	.002
Long-term Orientation → Subjective Norm	.60	.35	.13	.88	.015
Long-term Orientation → Availability	.28	.08	.12	.45	.003
Long-term Orientation → Price	.57	.33	.06	.90	.095
Long-term Orientation → Health Consciousness	.38	.15	.17	.52	.014
Long-term Orientation → Environmental Concern	.34	.11	.10	.50	.018
Attitude → Intention	.55	.31	.46	.62	.003
Subjective Norm → Intention	.26	.07	.17	.32	.003
Availability → Intention	.02	.00	-.05	.09	.669
Price → Intention	.08	.01	-.01	.17	.139
Health Consciousness → Intention	.13	.02	.05	.21	.005
Environmental Concern → Intention	.08	.01	-.01	.16	.129
Intention → Behaviour	.53	.28	.47	.59	<.001

Note:  $\beta$  = estimate; R<sup>2</sup> = explained variance; CI-95% = Confidence Interval; p = level of significance; LO = lower bound; HI = Higher Bound.

When it comes to the indirect effects, long-term orientation was the construct displaying a stronger impact on consumers' intention to purchase organic foods, both in the Portuguese and Norwegian samples. Collectivism failed to reveal any significant influence on purchase intention and on behaviour, when analysing the samples separately. Long-term orientation, attitude, subjective norm and health consciousness emerged as significant indirect predictors of consumers' behaviour in both independent samples. Additionally, availability was pointed out by the findings as a relevant factor indirectly influencing behaviour for the Portuguese sample. For more details see Table 12.

**Table 12 - Path estimates indirect effects**

Path	B	R <sup>2</sup>	CI-95%		P
			LO	HI	
<b>Total sample</b>					
Collectivism → Intention	.15	.02	.04	.25	.045
Long-term Orientation → Intention	.64	.41	.54	.72	.020
Collectivism → Behaviour	.07	.01	.02	.12	.038
Long-term Orientation → Behaviour	.27	.07	.20	.33	.002
Attitude → Behaviour	.27	.07	.24	.31	<.001
Subjective Norm → Behaviour	.10	.01	.08	.13	<.001
Availability → Behaviour	.00	.00	-.02	.02	.914
Price → Behaviour	.05	.00	.03	.08	<.001
Health Consciousness → Behaviour	.07	.00	.04	.09	<.001
Environmental Concern → Behaviour	.06	.00	.03	.08	<.001
<b>Portuguese sample</b>					
Collectivism → Intention	.11	.01	-.55	.27	.768
Long-term Orientation → Intention	.74	.55	.34	.99	<.001
Collectivism → Behaviour	.05	.00	-.21	.13	.668
Long-term Orientation → Behaviour	.31	.09	.12	.45	<.001
Attitude → Behaviour	.29	.08	.23	.34	<.001
Subjective Norm → Behaviour	.04	.00	.02	.07	.019
Availability → Behaviour	.03	.00	.00	.06	.055
Price → Behaviour	.02	.00	-.07	.06	.172
Health Consciousness → Behaviour	.06	.00	.03	.09	.004
Environmental Concern → Behaviour	-.01	.00	-.04	.03	.681
<b>Norwegian sample</b>					
Collectivism → Intention	.21	.05	-.17	.85	.271
Long-term Orientation → Intention	.65	.42	.27	.81	.004
Collectivism → Behaviour	.11	.01	-.09	.49	.275
Long-term Orientation → Behaviour	.37	.14	.16	.48	.003
Attitude → Behaviour	.29	.09	.24	.34	.002
Subjective Norm → Behaviour	.14	.02	.09	.17	.002
Availability → Behaviour	.01	.00	-.03	.05	.671
Price → Behaviour	.04	.00	-.00	.09	.134
Health Consciousness → Behaviour	.07	.01	.03	.12	.004
Environmental Concern → Behaviour	.04	.00	-.00	.08	.120

Note:  $\beta$  = estimate; R<sup>2</sup> = explained variance; CI-95% = Confidence Interval; p = level of significance; LO = lower bound; HI = Higher Bound.

## 4.5. Multi-group Analysis

Multi-group analysis revealed that the structural model was invariant between countries, based on recommended criteria that: (a) the structural model fit was achieved for each group, including both Portuguese and Norwegian participants, and (b) invariance criteria were respected, since differences in CFI were contained within cut-offs, except for measurement residual. For more details, refer to table 13.

**Table 13 - Structural invariance between Portuguese and Norwegian**

	$\chi^2$	$\Delta \chi^2$	df	$\Delta df$	CFI	$\Delta CFI$
Unconstrained Model	2003.187	-	888	-	.901	-
Measurement Weights	2088.673	85.486	912	24	.897	.004
Structural Weights	2123.850	120.663	930	42	.896	.005
Structural Covariances	2130.009	126.822	933	45	.895	.006
Structural Residual	2170.362	167.175	940	52	.895	.006
Measurement Residual	2573.355	570.168	972	84	.858	.043

**Note:**  $\chi^2$  = qui-square; df = Degrees of Freedom;  $\Delta \chi^2$  = differences in qui-square;  $\Delta df$  = differences in df;  $p$  = level of significance; CFI = Comparative Fit Index;  $\Delta CFI$  = differences in CFI.

## 4.6. Hypotheses testing

Table 14 provides an overview of the hypotheses tested in this study. From all of the hypotheses, H2, H4, H8, H10, H12, H13, H14 e H19 were supported in both samples; H16 was supported only in the Portuguese sample; H6 and H11 only for the Norwegian one and the remaining (i.e., H1, H3, H5, H7, H9, H15 and H18) in none of the samples.

**Table 14 - Overall results of the hypotheses tested**

<b>Hypotheses</b>		<b>Results</b>	
		<b>PT</b>	<b>NO</b>
<b>H1</b>	Collectivism positively impacts consumers' attitude towards organic foods.	Not Supported	Not Supported
<b>H2</b>	Long-term Orientation positively impacts consumers' attitude towards organic foods.	Supported	Supported
<b>H3</b>	Collectivism positively impacts consumers' subjective norm towards organic foods.	Not Supported	Not Supported
<b>H4</b>	Long-term Orientation positively impacts consumers' subjective norm towards organic foods.	Supported	Supported
<b>H5</b>	Collectivism positively impacts consumers' perception of price organic foods.	Not Supported	Not Supported
<b>H6</b>	Long-term Orientation positively impacts consumers' perception of price organic foods.	Not Supported	Supported
<b>H7</b>	Collectivism positively impacts consumers' perception of availability towards organic foods.	Not Supported	Not Supported
<b>H8</b>	Long-term Orientation positively impacts consumers' perception of availability towards organic foods.	Supported	Supported
<b>H9</b>	Collectivism negatively impacts consumers' health consciousness towards organic foods.	Not Supported	Not Supported
<b>H10</b>	Long-term Orientation positively impacts consumers' health consciousness towards organic foods.	Supported	Supported
<b>H11</b>	Collectivism positively impacts consumers' environmental concern towards organic foods.	Not Supported	Supported
<b>H12</b>	Long-term Orientation positively impacts consumers' environmental concern towards organic foods.	Supported	Supported
<b>H13</b>	Attitude towards organic foods positively influences their intention to purchase organic foods.	Supported	Supported
<b>H14</b>	Subjective Norm positively influences consumers' intention to purchase organic foods.	Supported	Supported
<b>H15</b>	Price negatively influences consumers' intention to purchase organic foods.	Not Supported	Not Supported
<b>H16</b>	Availability positively influences consumers' intention to purchase organic foods.	Supported	Not Supported
<b>H17</b>	Health Consciousness positively influences consumers' intention towards organic foods.	Supported	Supported
<b>H18</b>	Environmental Concern positively influences consumers' intention towards organic foods.	Not Supported	Not Supported
<b>H19</b>	Intention towards organic foods positively influences consumer purchase behaviour.	Supported	Supported

## Section V | Discussion

In the present section, findings of the current study are discussed in light of previous literature.

### 5.1. Results discussion

The main purpose of this study was to analyse the impact of culture on consumers' purchase intention towards organic foods and the behaviour itself, focusing on two specific countries, Portugal and Norway. The TPB was used as the main theoretical framework, and was then further extended in order to include other constructs such as environmental concern and health consciousness. Following previous research (Tarkiainen & Sundqvist, 2005), PBC was replaced by availability and price.

Our results support the employment of the TPB in the context of organic foods, since cognitive tenets (i.e., attitude and subjective norm) proved to be significant in predicting consumers' organic foods purchase intention, both in Portugal and in Norway.

Attitude was the most significant determinant of organic foods purchase intention among consumers both for the Portuguese and the Norwegian sample. These findings are aligned with previous research that has identified attitude towards organic foods to be the strongest predictor of consumers' organic foods purchase intention in several other countries (Rana & Paul, 2017; Scalco et al. et al., 2017). Nevertheless, it is worth to mention that the explanatory power of attitude on intention to purchase organic foods is stronger in Portugal than in Norway. As a matter of fact, Vittersø and Tangeland (2015) concluded that, between 2000 and 2013, Norwegian consumers' attitudes towards organic foods had become more negative, which might be explained by the fact that Norwegian consumers only held moderate beliefs towards the superiority of organic foods (Kvakkestad, 2017).

Although research results are quite divergent when it comes to the influence of subjective norm in consumers' purchase intention towards organic foods, this construct was found to significantly influence consumers' intention to purchase organic foods both in the Portuguese and the Norwegian markets, thus supporting the findings of Asif et al. (2018) and Sreen et al. (2018). Nevertheless, the explanatory power of subjective norm was stronger in the Norwegian sample when in comparison to the Portuguese one. As previously mentioned, the Portuguese market for organic foods is in its early beginnings (IFOAM, 2019), therefore, subjective norm might not yet be as relevant for the Portuguese sample due to the fact that purchasing organic foods has yet to become a social norm. Contrarily, for the Norwegian population, the purchase

of organic foods might already be considered a social norm, since the market is more developed and people are more familiar with such products (IFOAM, 2019).

Price and availability have been identified by previous research as the main barriers impeding consumers of purchasing organic foods (Rana and Paul, 2017; Scalco et al., 2017; Yadav and Pathak, 2016). However, both for the Norwegian and the Portuguese samples, price did not display a significant influence on consumers' intention to purchase organic foods or on the behaviour itself, therefore supporting the findings from Tarkiainen and Sundqvist (2005). One of the possibilities is that Portuguese and Norwegian consumers do not perceive the price of organic foods as affecting their purchase intention, which might be due to the fact that they do not see organic foods' price premium as significant, when compared to conventionally grown foods. In what concerns availability, a significant impact on Portuguese consumers' intention to purchase organic foods was identified, but no relevant influence was found for the Norwegian consumers. This might be explained by the fact that consumers in Norway seem to be overall satisfied with the availability of organic foods in the supermarkets, therefore not considering availability as highly impacting their purchase intention (Vittersø and Tangeland, 2015). Contrarily, as the market in Portugal is in its early stages (IFOAM, 2019), Portuguese consumers' might perceive that organic foods are not sufficiently and widely available in the commercial areas they usually shop, hence turning availability a relevant barrier when it comes to regularly finding organic foods.

Health consciousness emerged as a significant predictor of consumers' intention to purchase organic foods in both countries, supporting results from previous research (Yadav & Pathak, 2016; Asif et al., 2018) that identify health consciousness as an important construct when analysing consumers' purchase intention towards organic foods. The explanatory power of this construct was similar for the Portuguese and the Norwegian consumers and is easily understood in light of the widely spread belief that organic foods are healthier and more nutritious (Lea & Worsley, 2005).

Aligned with findings from Yadav and Pathak (2016) and Asif et al. (2018) for Pakistan and Turkey, and contradicting the findings of Paul et al. (2016) and Asif et al (2018) for Iran, environmental concern did not present any significant influence on consumers' purchase intention in Portugal and in Norway. As a matter of fact, the impact of this variable on intention in the Portuguese sample was negative. This might be due to the fact that organic foods are sometimes imported from other countries, having to be transported for long distances in order to finally reach the supermarket shelf (Vittersø and Tangeland, 2015), which

in the end makes them not so environmentally friendly, as transportation can be very damaging to the environment. As a consequence, people who are highly concerned about the environment might prefer not to buy organic and rather just consume locally grown foods.

All in all, results evidence that the influence of health consciousness on consumers' intention to purchase organic foods is stronger than the influence of environmental concern. This was reported for both samples, consequently reinforcing the findings of Magnusson et al. (2003), which highlight the stronger influence of less altruistic motives on consumers' intention to purchase organic foods.

As far as it concerns the influence of the cultural variables, collectivism merely displayed a significant influence on environmental concern for the Norwegian sample. All other path estimates failed to show any significance, contradicting the findings of Sreen et al. (2018). Collectivism is characterized by a stronger focus on the group goals than on individual ones (Hofstede, 1980). Hence, the fact that collectivism failed to reveal itself as significantly affecting consumers might be explained by the stronger influence of individual benefits (i.e., health benefits) on consumers' intention, when compared to collective ones (i.e., overall environmental benefits).

Pragmatism is intimately related with long-term orientation, since long-term orientated societies are more pragmatic, hence focusing on the future outcomes of the present actions (Hofstede, 2001). Minton et al. (2018) pointed out the key role of pragmatism on understanding participation in sustainable attitudes and concluded that the higher the pragmatism of a society, the higher the likelihood of consumers to engage in sustainable behaviours. Our results highly support these findings, as long-term orientation displayed, in both samples, a significant and positive impact on consumers' intention to purchase organic foods and on the behaviour itself. Additionally, this construct also proved to significantly impact consumers' attitude towards organic foods both for the Norwegian and Portuguese samples. The influence of this cultural dimension is comprehensible, since the outcomes of consuming organic foods will only have their impact on the future. Hence, if someone is rather focused on the present, this is, has a short-term oriented mind set, that person will be less likely to value the possible positive outcomes of consuming organic foods.

Intention remains an important predictor of consumers' behaviour, accounting for a unique contribution of 15% in Portugal and 28% in Norway. Besides the direct influence of intention on behaviour; long-term orientation, attitude, subjective norm and health consciousness were found to indirectly impact consumers' behaviour in both samples. Additionally, availability was

also pointed out by results as a significant factor influencing consumers' purchase behaviour in the Portuguese sample. Availability was not significant in the Norwegian sample, which might be explained based on the Norwegian organic foods' market development and suitable availability of organic goods in the supermarkets, as previously mentioned.

All in all, health consciousness, attitude and subjective norm were considered the best predictors for consumers' purchase intention both for the Portuguese and the Norwegian sample. These findings reinforce the suitability of the TPB on the context of organic foods and the inclusion of the health consciousness construct when analysing the antecedents of consumers' intention and behaviour towards organic foods.

With respect to structural invariance between the Portuguese and the Norwegian samples, results support the equivalence of the current model across both populations, since all invariance assumptions were met, except for measurement invariance (Byrne, 2010; Chen, 2007; Cheung & Rensvold, 2002). Regardless of the country, all factors of the model were perceived equally. Regarding the measurement residuals' lack of invariance, Hair et al. (2014) noted that higher levels of invariance are seldom achieved and recommended moving ahead when structural invariance is confirmed, as was the case in this study. Therefore, our data confirmed the applicability of this structural model in Portugal and in Norway as a means of assessing intentions towards the purchase of organic foods and consumers' behaviour itself, since Portuguese and Norwegian respondents similarly perceived the variables under analysis.



## **Section VI | Conclusions**

### **6.1. Main conclusions**

The aim of this research was to analyse consumers' purchase intention and behaviour towards organic foods in general. This study analysed the impact of cultural variables on cognitive tenets and the influence of the cognitive tenets on consumers' purchase intention towards organic foods. To the best of our knowledge, this study was one of the firsts to analyse the influence of cultural dimensions (i.e., collectivism and long-term orientation) on consumers' intention to purchase organic foods and on consumers' behaviour itself. As suggested by Minton et al. (2018), our research did not use prior cultural values results, but measured these variables in the study herein.

Results showed that attitude was the most significant predictor of consumers' intention to purchase organic foods and that intention had the greatest explanatory power when it comes to predicting consumers' behaviour, both in Portugal and in Norway. Attitude, subjective norm and health consciousness significantly influenced consumers' intention to purchase organic foods in both nations. Additionally, availability had a significant effect on intention for the Portuguese sample. Moreover, health consciousness, attitude and long-term orientation significantly, indirectly and positively influenced consumers' behaviour in both countries. Long-term orientation was found to significantly predict all constructs, except price in the Portuguese sample. Contrarily, collectivism failed to reveal any significant impact, besides on environmental concern, for the Norwegian sample.

### **6.2. Theoretical and practical implications**

From a theoretical point of view, this study addresses several gaps identified by previous research, such as the lack of studies in the context of organic foods collecting data to analyse behaviour; the analysis of the impact cultural dimensions have on consumers' intention to purchase organic foods and the application of the TPB in the context of organic foods in Portugal and in Norway.

From a practical point of view, results of this study highlight the need for marketers and countries' bodies of regulation to consider the impact of culture when it comes to consumers' intention to purchase organic foods, more specifically the long-term orientation dimension. Our results suggest this cultural dimension to be highly important in the organic foods context. Additionally, consumers' attitudes towards organic foods emerged as a significant predictor of consumers' intention and behaviour. Finally, health consciousness also outstood as a relevant

predictor. These findings were similar for both the countries under analysis in this study. Hence, one can assume that organic food consumers' in Portugal and in Norway are prompt to purchase organic foods because they believe on the future health outcomes inherently connected with this type of food.

Attitude and subjective norm also emerged as relevant constructs towards intention and behaviour. Therefore, companies' marketing strategies and government campaigns should also focus on promoting a positive attitude towards organic foods among consumers and engage in informative campaigns aiming at making people more knowledgeable about organic foods, so that the organic foods' consumption becomes more and more a social norm. Finally, as Availability was found to impact Portuguese consumers' intention to purchase organic foods, serious efforts focusing on the improvement of the organic foods' supply chain are advised, so that consumers can easily buy organic foods in nearby commercial surfaces.

### **6.3. Limitations and future research**

Future research should aim at analysing consumers' behaviour, in order for results to be compared. Additionally, as organic foods are generally perceived to be a wise choice, self-reported behaviour might be influenced by social desirability bias, answering accordingly to what they think is most socially acceptable or expected. Therefore, future research should aim at analysing behaviour based on real observed behaviour rather than self-reported behaviour, for instance by using organic foods' sales data directly collected from supermarket chains.

According to previous literature (Singh and Verma, 2017), consumption of organic foods is usually range biased, hence, consumer's purchase intention towards organic foods might vary according to the food category (i.e., organic fruits, organic meat, organic milk, etc.). As a consequence, consumer's intention and behaviour towards organic milk might differ from consumer's intention and behaviour towards organic fruit. Future research could, therefore, become more range specific, in order to reveal which ranges of products are consumers more willing to opt for in what regards organic foods.

Student samples are extremely common in cross-cultural studies due to the facility of recruitment, lower cost of administration and assumed lower response bias (Hanel & Vione, 2016). Besides, research also points out that students tend to accurately represent the overall population (Hanel & Vione, 2016). Nevertheless, age was found to be related with consumers' purchase intention towards organic foods in previous studies (Yadav and Pathak, 2017). Hughner et al. (2005), highlighting that younger consumers are more likely to display more positive attitudes towards organic foods, while older consumers are more likely to actually

purchase them. Therefore, for the validity of results to be expanded, future research should aim at conducting questionnaires in different ranges of the population. Furthermore, multi-group analyses focused on other sociodemographic characteristics, such as gender and education level, might yield interesting results.

Finally, upcoming investigation should attempt to replicate our findings in other countries, by applying the same structural model, not only in order to test its applicability in other nations, but also as means of comparison with the findings of this study. Moreover, further research could aim at analysing the mediation effect of the cognitive variables in the path between cultural variables and purchase intention.

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# Appendixes

## Appendix A | Questionnaire

### Informed Consent

The researchers ask your consent for participating in a study about consumer attitudes and behaviour towards organic food. This consent form asks for the permission to use the data that you provided voluntarily by answering this survey in researcher's publications on this topic.

I understand the purpose and the nature of this study, in which I agree to participate voluntarily. I understand that I can withdraw from the study at any time and decide not to answer any specific question, without any penalty or consequences. Researchers will maintain the confidentiality of the research records and data.

I grant permission for the data voluntarily provided in this survey to be used in the researchers' publications on this topic.

### Personal Information

1. Age: \_\_\_\_\_
2. Gender: a) Male                      b) Female
3. Highest academic qualification: a) High school      b) Diploma      c) Graduate  
d) Post graduate e) PhD
4. Household size: a) 1 person      b) 2-3 people      c) 4-5 people      d) more than 5 people
5. Occupation: a) full-time job      b) part-time job      d) unemployed  
e) student
6. Are you the one responsible for buying food for your household? Yes \_\_\_ No \_\_\_
7. How many times did you buy organic foods last month?  
a) 0 \_\_\_      b) 1-2 \_\_\_      c) 3-4 \_\_\_      d) 5-6 \_\_\_      e) 7 or more \_\_\_

### General instructions

- 1) Express your most sincere opinion and answer accordingly to your thoughts/ feelings;
- 2) There are no right or wrong answers. Your opinion corresponds to the truth;
- 3) Please bear in mind the scale for each statement;
- 4) In case of doubt, answer accordingly with your first impression when reading the statement;
- 5) Mark with an "X" the box corresponding to the number that better reflects your level of agreement.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
<b>Health Consciousness (Tarkianien and Sundqvist, 2005)</b>					
1) I choose food carefully to ensure good health.	1	2	3	4	5
2) I think of myself as a health-conscious consumer.	1	2	3	4	5
3) I think often about health issues.	1	2	3	4	5
<b>Environmental Concern (Yadav and Pathak, 2016)</b>					
4) Humans are severely abusing the environment.	1	2	3	4	5
5) Humans must maintain the balance with nature in order to survive.	1	2	3	4	5
6) Human interferences with nature often produce disastrous consequences.	1	2	3	4	5
<b>Attitude (Yadav and Pathak, 2016)</b>					
7) Buying organic foods is a good idea.	1	2	3	4	5
8) Buying organic foods is a wise choice.	1	2	3	4	5
9) I like the idea of buying organic foods.	1	2	3	4	5
10) Buying organic foods would be pleasant.	1	2	3	4	5
<b>Subjective Norm (Adapted from Paul et. al, 2016)</b>					
11) People who are important to me think that I should purchase organic foods.	1	2	3	4	5
12) People who are important to me would want me to purchase organic foods.	1	2	3	4	5
13) People whose opinions I value prefer that I purchase organic foods.	1	2	3	4	5
14) My friends' positive opinion influences me to purchase organic foods.	1	2	3	4	5
<b>Perceived price (Sighn and Verma, 2017)</b>					
15) Organic foods are expensive.	1	2	3	4	5
16) The price of organic foods is in accordance with its benefits.	1	2	3	4	5
17) The price for organic foods is fair.	1	2	3	4	5
<b>Perceived Availability (Tarkianien and Sunqvist, 2005)</b>					
18) Organic foods are always sufficiently available.	1	2	3	4	5
19) It is easy to find organic foods.	1	2	3	4	5
20) It is easy to have access to organic foods.	1	2	3	4	5
<b>Purchase Intention (Lee, Hsu, Han, e Kim, 2010)</b>					
21) I intend to buy organic products in the near future.	1	2	3	4	5
22) I plan to buy organic foods in the future.	1	2	3	4	5
23) I will make an effort to buy organic foods in the future.	1	2	3	4	5

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
<b>Collectivism (Yoo et al., 2015)</b>					
24) Individuals should sacrifice self-interest for the group.	1	2	3	4	5
25) Individuals should stick with the group even through difficulties.	1	2	3	4	5
26) Group welfare is more important than individual rewards.	1	2	3	4	5
27) Group success is more important than individual success.	1	2	3	4	5
28) Individuals should only pursue their goals after considering the welfare of the group.	1	2	3	4	5
29) Group loyalty should be encouraged even if individual goals suffer.	1	2	3	4	5

	Not important	Slightly important	Moderately important	Important	Very important
<b>Long-term orientation (Yoo et al., 2015)</b>					
30) Careful management of money. (Thrift)	1	2	3	4	5
31) Going on resolutely in spite of opposition. (Persistence)	1	2	3	4	5
32) Personal steadiness and stability.	1	2	3	4	5
33) Long-term planning.	1	2	3	4	5
34) Giving up today's fun for success in the future.	1	2	3	4	5
35) Working hard for success in the future.	1	2	3	4	5

## Appendix B – Box-plot graphics

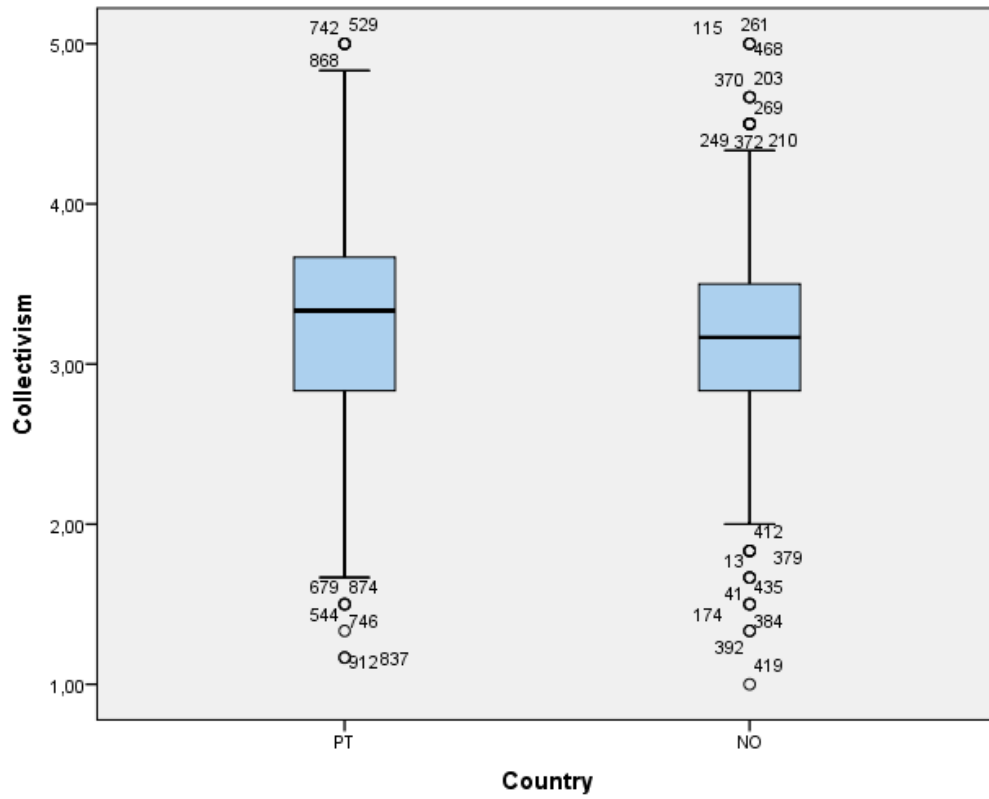


Figure 3 - Distribution Collectivism scores by country

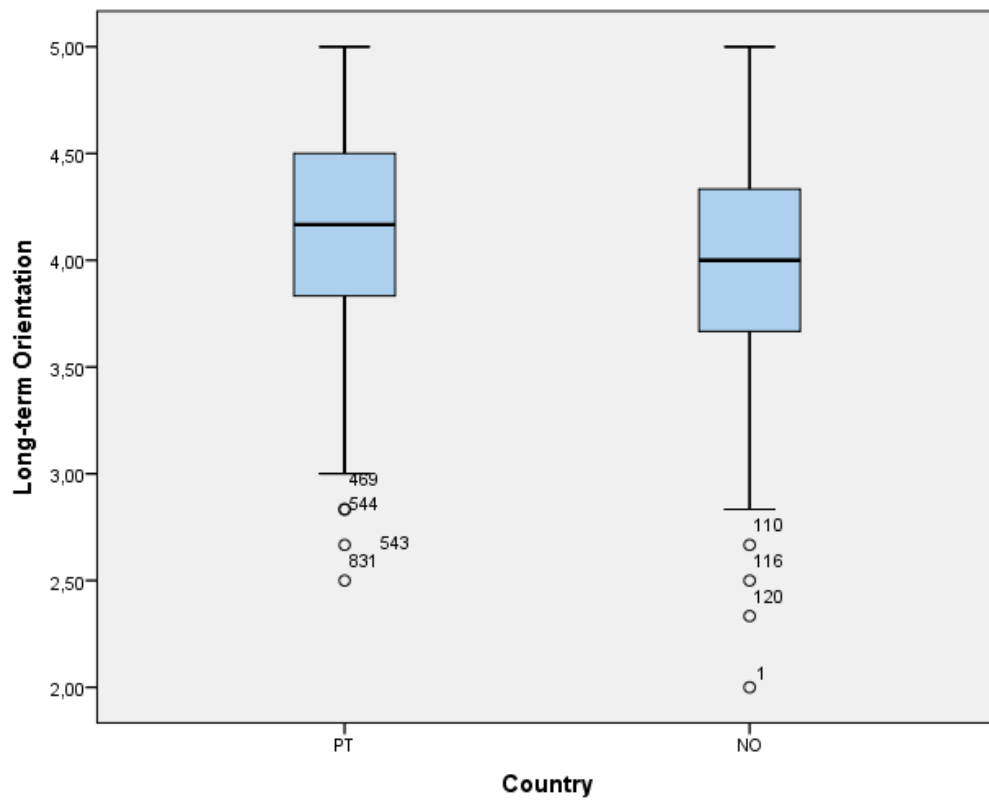


Figure 4 - Distribution Long-term Orientation scores by country

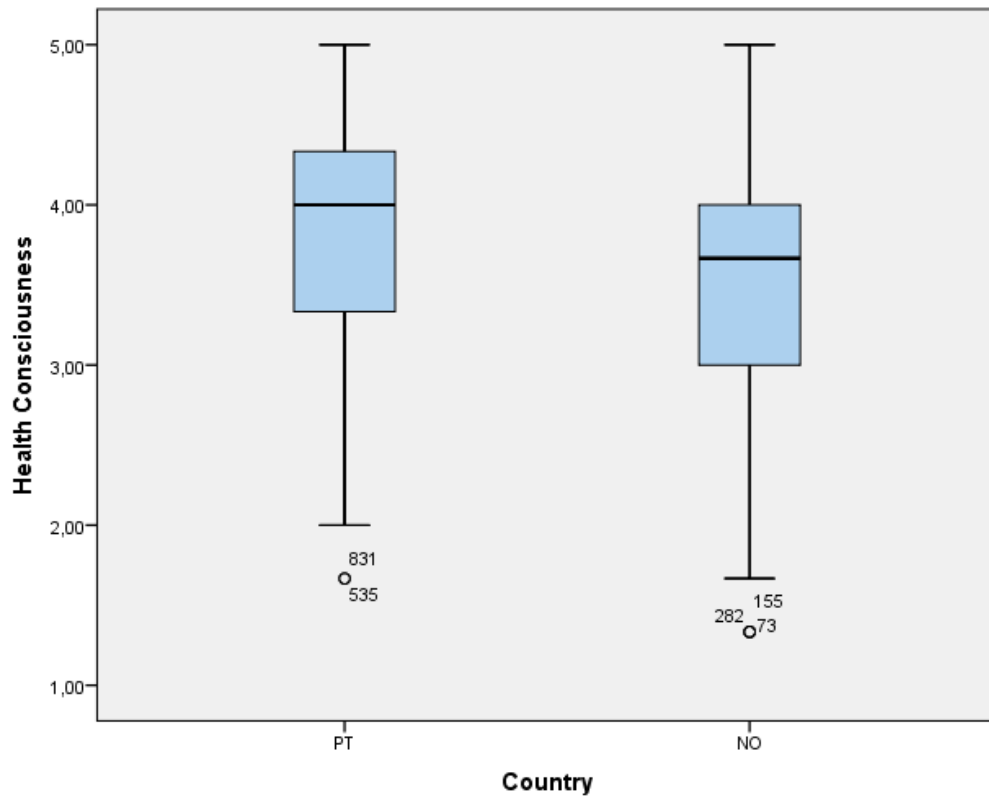


Figure 5 - Distribution Health Consciousness scores by country

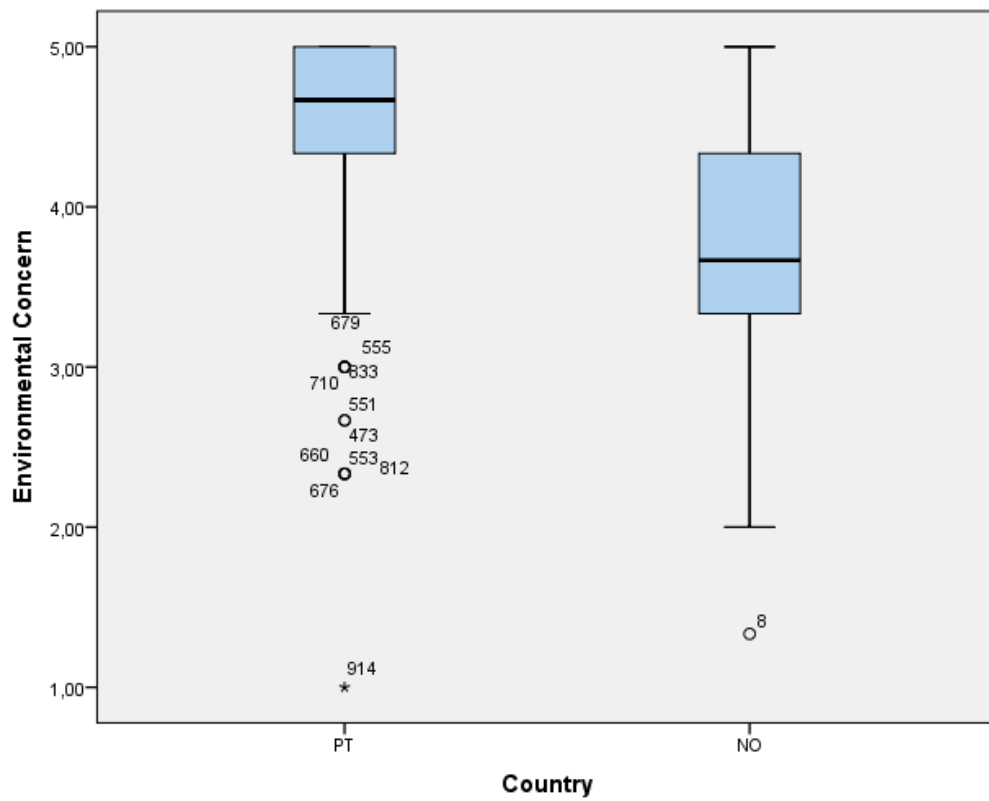


Figure 6 - Distribution Environmental Concern scores by country

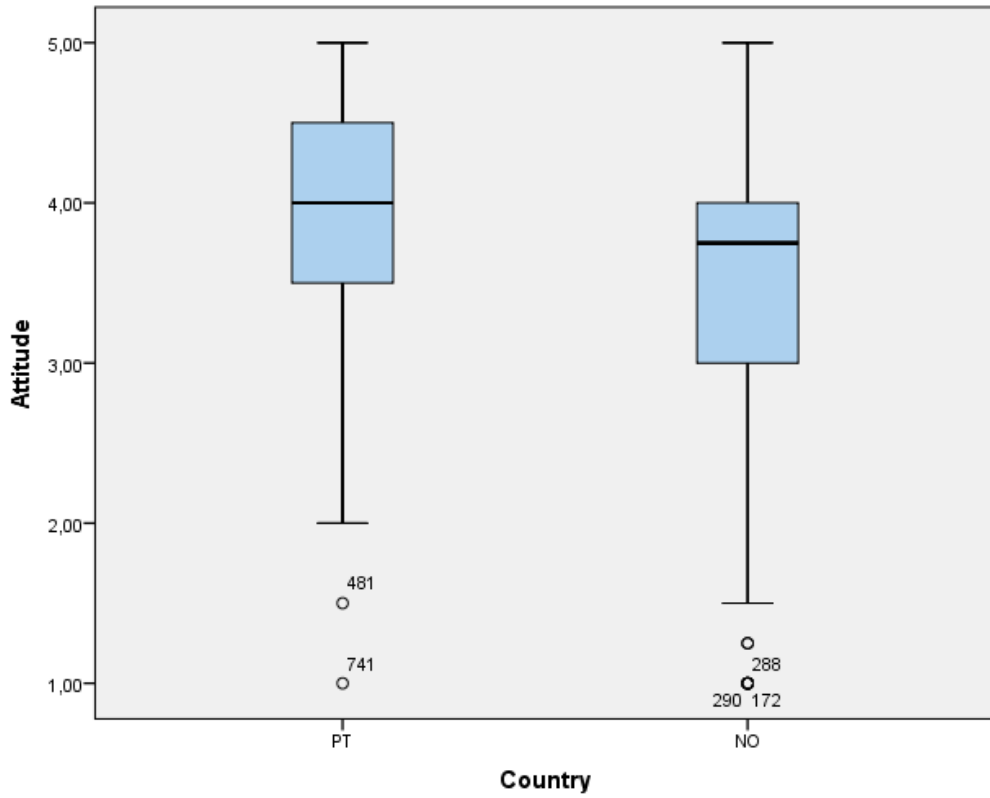


Figure 7 - Distribution Attitude scores by country

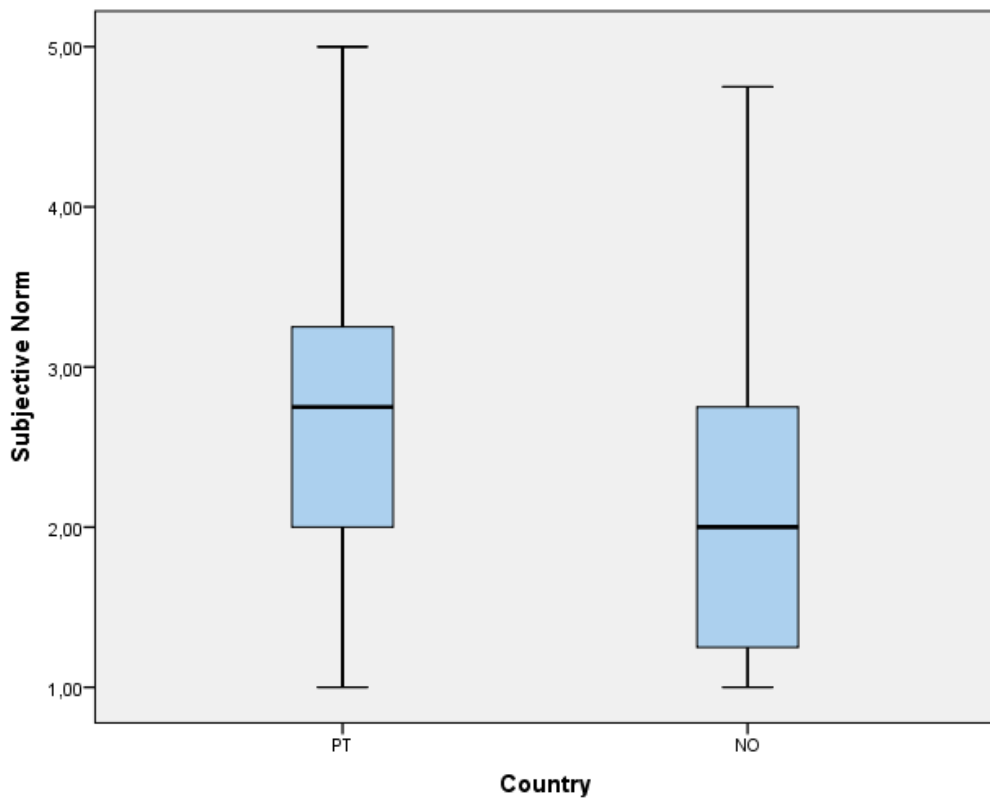


Figure 8 - Distribution Subjective Norm scores by country



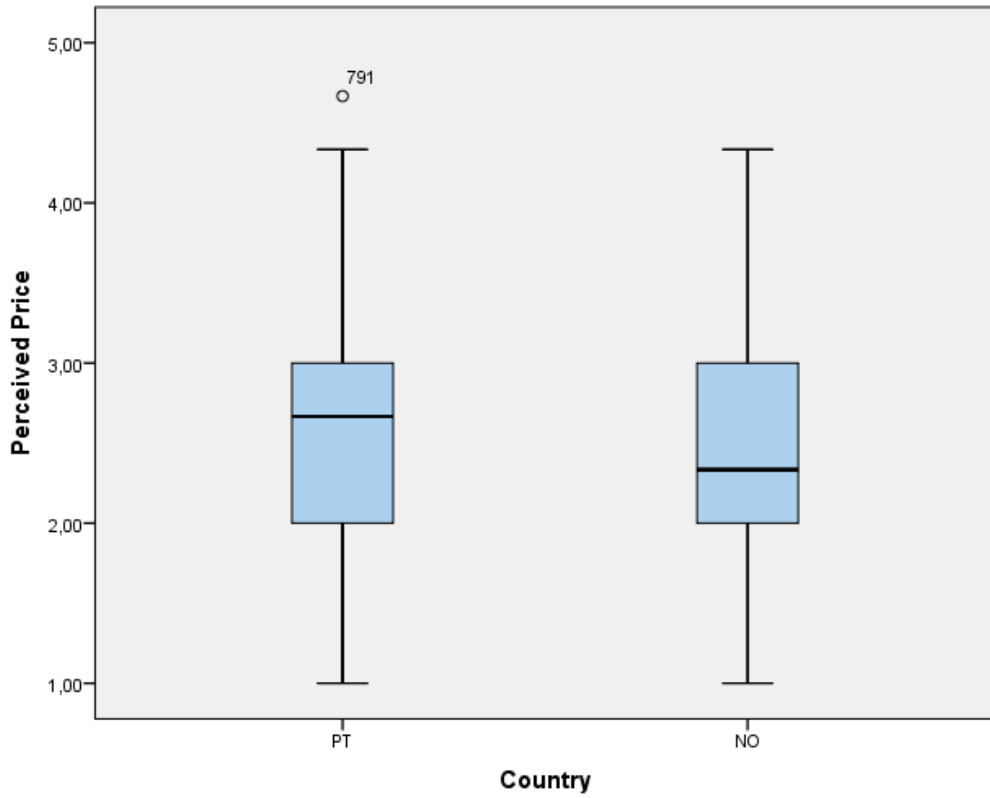


Figure 9 - Distribution Perceived Price scores by country

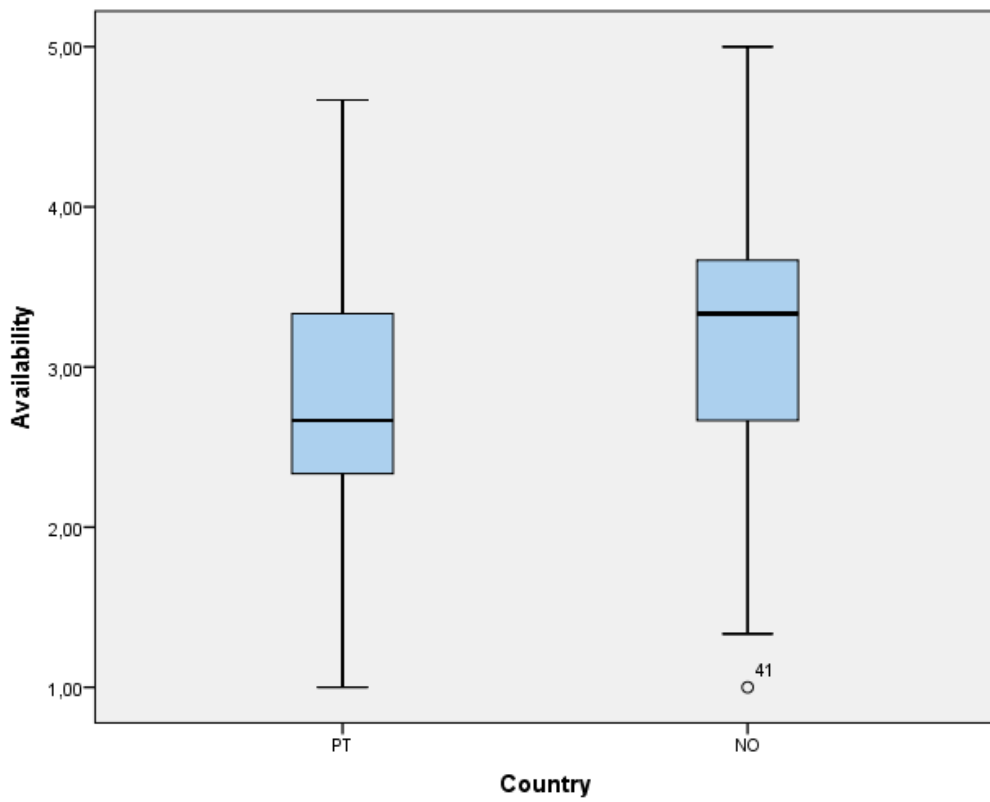


Figure 10 - Distribution Availability scores by country

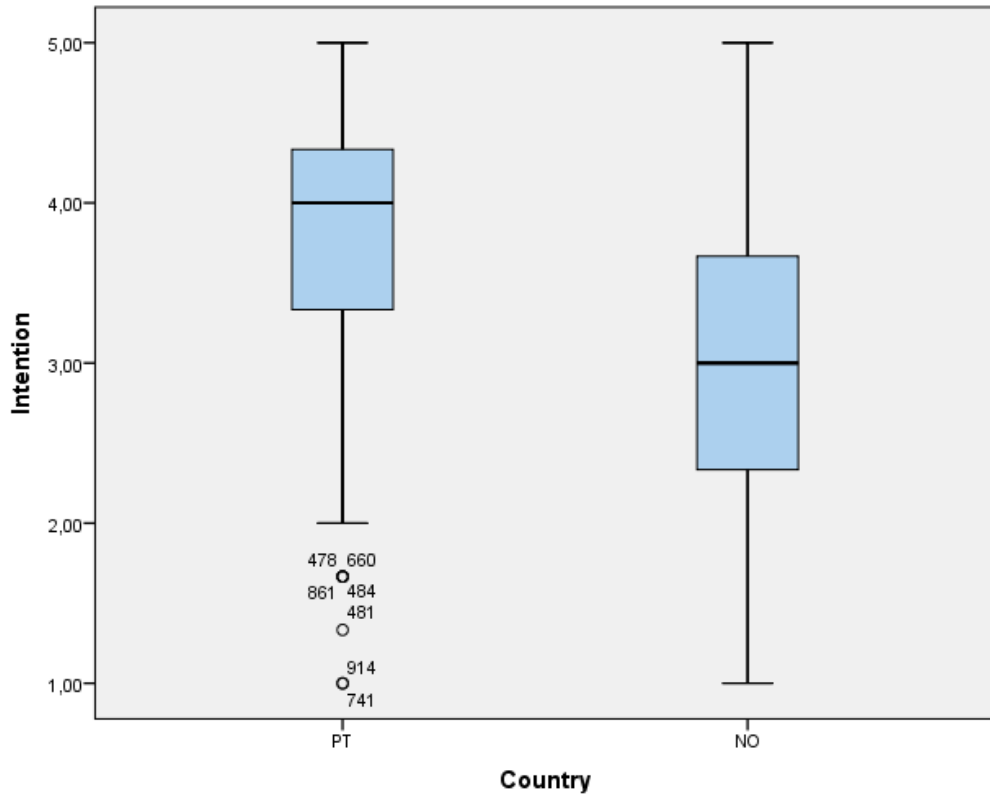


Figure 11 - Distribution Intention scores by country

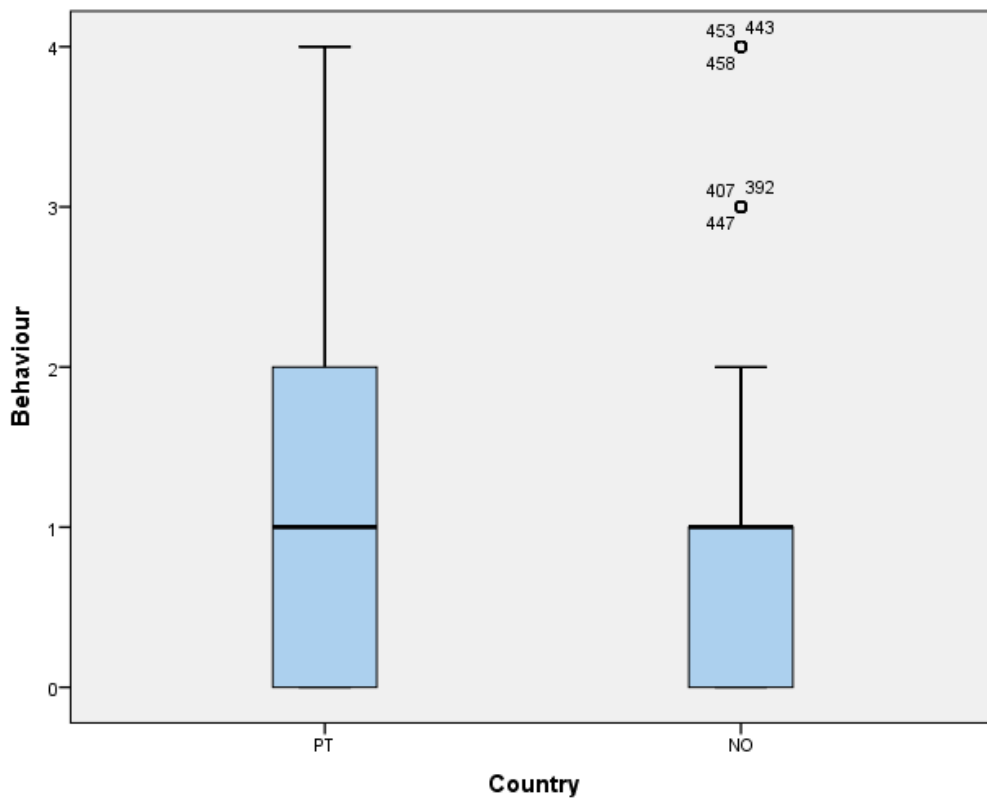


Figure 12 - Distribution Behaviour scores by country