

Article

Antecedents of Consumers' Intention and Behavior to Purchase Organic Food in the Portuguese Context

Sandra Ferreira ^{1,*} and Olga Pereira ^{1,2}

¹ School of Economics and Management, University of Minho, 4710-057 Braga, Portugal; opereira@eeg.uminho.pt

² UNIDCOM/IADE Research Unit, 1200-649 Lisbon, Portugal

* Correspondence: sandra.crist17@gmail.com

Abstract: The demand and commercialization of organic foods is developing rapidly. However, there is an imbalance between the increasing use of these products and the limited attention of researchers to this category of products. The present study intends to evaluate the antecedents of the consumer purchase intention and behavior on organic foods, based on the Theory of Planned Behavior (TPB). To reach the research objectives, a quantitative methodology was developed. An online questionnaire was applied in organic food social network groups and Portuguese organic food stores. To test the hypothesis, structural equation modelling (SEM) was conducted. Findings revealed that environmental concern has a significantly positive effect on purchasing attitude and on purchase intention. Health consciousness has a significant and positive relationship with attitude and purchase intention, and attitude has a significant and positive relationship with purchase intention. Finally, purchase intention has a significant and positive relationship with purchase behavior. Theoretically, this study is a response to frequent requests to investigate beyond consumer intention and assess influences on actual behavior. Producers and marketing professionals may utilize our findings to develop strategies to attract the growing organic food community and encourage its purchase.

Keywords: organic food; purchase behavior; purchase intention; green products; environmental concern; health consciousness; theory of planned behavior; sustainable consumption; organic products



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1. Introduction

Over the past few decades, a remarkable awareness of sustainable consumption has grown among consumers and businesses [1]. Organic foods stood out, moving from a neglected niche market to the main food market [2]. The organic food market in developed economies is experiencing a remarkable expansion. Between 2004 and 2012, the European organic food market underwent substantial growth, doubling its size and reaching an impressive value of 22.8 billion EUR [3]. This led to changes in consumption and production patterns in the environmental sustainability field [4]. However, the growing demand has also been reinforced by several contaminated food scares, such as mad cow disease, produce tainted with alar, milk laced with hormones, etc. [5]. Although the demand and commercialization of organic foods is developing rapidly [6], there is an imbalance between the increasing use of these products and the limited attention of researchers to this category of products [7–9]. The limited attention is especially surprising considering the discrepancy between consumers' intentions and their actual purchase behaviors [2,10,11].

Previous studies have shown relevant conclusions regarding the factors that affect the intention and behavior of purchasing organic foods. The literature review carried out by Rana and Paul (2017) highlighted health consciousness and environmental concern as the specific attributes and factors that most affect the attitude and purchase of organic food. Bryla (2016) conducted a study in Poland and concluded that Polish consumers are convinced that organic food is more expensive, healthier, more environmentally friendly,

tastier, and more authentic than conventional food. The results of Naffes et al. (2022) also confirm the primacy of health and environmental motives among urban Indian millennial organic food users. Within the scope of the Theory of Planned Behavior (TPB), perceived behavioral control and subjective norms are not significant determinants of intention [12–14]. Furthermore, recent studies have confirmed that subjective norms are not a significant determinant and have the weakest relationship with intention and/or behavior [11,13]. The results suggest that consumers are not facing pressure from those they consider important to adopt a decision to buy organic food, as according to Chekima, Chekima, and Chekima (2019), this buying behavior is still not practiced by a large part of the community. On the contrary, attitude towards purchase has been identified as the main determinant of the intention to buy organic food because the use of organic food is a very individual behavior [12]. However, the use of TPB in this area, such as behavioral intention and purchase of consumers towards organic food products, especially in the Portuguese context is limited. In this sense, some authors affirm the importance of better analysis of the factors that affect the consumer's attitude towards organic foods, since this knowledge would be valuable to increase the intention and purchase of these foods [12,15]. According to Rana and Paul (2017), a more integrated perspective is important when studying the complexity of pro-environmental behaviors, specifically in the case of buying organic food, as they have specific attributes that must be considered, such as health and environment. Therefore, conducting research to access behavioral intention and actual purchase behavior regarding organic food becomes crucial in assisting organic producers to foster the growth of organic foods in the market.

The present study intends to evaluate the antecedents of the consumer purchase intention and behavior on organic foods. In particular, the purpose of this study is to (1) evaluate the relationship between environmental concerns and health consciousness in the purchase intention of organic foods and in the attitude towards organic foods; (2) access the relationship between attitude and purchase intention, and (3) understand the relationship with purchase intention in the current purchase behavior of organic foods. According to our knowledge, this is one of very few studies to investigate organic food purchase in a representative sample of the Portuguese population/context. It also goes beyond the existing literature because of the measurement of actual purchase behavior towards organic food, due to the existing gap between intentions and actions.

2. Literature Review

2.1. Organic Food

Organic food refers to a new product in the category of ecological, sustainable, or ethical products [16]. There are several definitions in the literature that point to patterns of similarity, where some terms or keywords that are used to refer to organic foods, such as “natural”, “sustainable”, “healthy”, “safe” and “quality” were identified (Table 1). This happens because synthetic chemicals are not used in their production [15]. On the other hand, in addition to the concept of “organic food”, the concept of “organic agriculture” was identified, which reveals that organic food is associated with its mode of production and organic agriculture. While some definitions highlight dimensions such as “organic” or “natural” [17] and “environmentally sustainable” [18] or “future generations” [2], others emphasize the limited use of artificial chemicals in organic production [15,19]. Based on this, we can define organic food as: quality food products obtained according to the standards of organic agriculture, free of artificial chemicals, which promote the health of soils, ecosystems, and human beings, respecting future generations.

Several studies have been carried out with the aim of determining the factors that influence the intention and behavior of purchasing organic foods. In this sense, some studies focus their investigation on the determinants of the intention to purchase organic food as a dependent variable [8,13,20]. Others seek to go beyond intentions and investigate the determinants of current buying behavior for organic foods [2,10,21]. Although positive antecedents are the most analyzed, some studies have sought to assess barriers to

the consumption of organic foods [8], or even a combination of positive antecedents and barriers [2]. Regarding the geographic context, several investigations have been applied to developed countries, such as, for example, Germany [10], Slovenia [8] and Poland [3], while others focus on developing countries, such as India [6,13,16], Vietnam [17] and China [19]. However, previous studies offer mixed and inconclusive results, as well as some limitations, as mentioned by Doorn, Van, and Verhoef (2015). One of the limitations essentially refers to the use of intentions as a singular dependent variable, with no measurement of actual purchase behavior, which is especially surprising given the existence of a gap between intentions and actions [4,22]. In this sense, several authors suggest incorporating the actual purchase behavior together with the intention regarding the purchase of organic food to improve the external validity of the empirical results in future studies [6,10,13,17]. Moreover, there exists insufficient awareness regarding the significance of the environment and organic products, underscoring the importance of investigating consumers' behavioral intentions towards these products [21]. Therefore, investigating the determinants of intention and behavior to purchase organic food currently represents a study opportunity.

Table 1. Overview of conceptualizations of organic food in the literature.

| Author(s) | Definition | Keyword |
|-----------|---|---|
| [15] | "Organic food encompasses natural food items free of artificial chemicals such as fertilizers, herbicides, pesticides, antibiotics and genetically modified organisms" (p. 158). | Natural |
| [2] | "Food products that are safe for consumption, of good quality, nutritious and produced under the principle of sustainable development" (p. 1884). | Safe; Quality; Nutritious; Healthy; Sustainable Development |
| [18] | "Food grown using renewable resources and conserving soil and water to improve environmental quality for future generations, (...) is not grown or processed with conventional pesticides, synthetic fertilizers, bioengineering or ionizing radiation" (p. 259). | Quality; Future generations |
| [17] | "Product obtained or manufactured according to the standards of organic agriculture that sustain and promote the well-being of soils, ecosystems and human beings" (p. 540). | Well-being; Organic agriculture |

2.2. Theory of Planned Behavior

The Theory of Planned Behavior (TPB) has been widely applied to predict green behaviors [4,22,23], including organic foods [11–13]. The TPB model was developed as an extension of the Theory of Reasoned Action [24], which is an important social cognitive model that aims to explain variations in volitional behavior [25]. This theory assumes that most human behavior is the result of an individual's intention to perform a specific behavior, and that intention is directly influenced by three factors: personal attitudes, subjective norms, and perceived behavioral control [25]. Thus, attitude toward behavior, subjective norms, and perceived behavioral control, in combination, lead to the formation of behavioral intention.

2.3. Environmental Concern

Consumers' concern for the environment has attracted significant interest in the pro-environmental behavior literature, particularly in the case of organic foods. Environmental concern explains how individuals evaluate various situations in terms of preserving the natural environment and collective interests [8]. Organic foods are more environmentally

friendly compared to existing conventional alternatives as they are devoid of artificial ingredients such as chemicals, fertilizers, pesticides, and growth hormones [15,26]. Thus, it is expected that consumers with high environmental concern will prefer green products, such as organic food [16]. In this context, several studies have shown that environmental concern has a direct and significant positive impact on the attitude towards organic food [10,13,26,27], as well as positively influence the purchase intention of these food products [6,13,14,26]. Therefore, the notion is that consumers with high environmental concern are directly associated with their positive attitude towards organic foods and, in turn, have a high level of purchase intention for these products. In this sense, the following hypotheses are proposed:

H1. *Environmental concern positively influences attitudes towards organic food.*

H2. *Environmental concerns positively influence purchase intentions towards organic foods.*

2.4. Health Consciousness

The existing literature on the determinants of buying organic food emphasizes the important role of health-related motives. In the context of buying organic food, health has been considered one of the most significant factors that motivate consumers to opt for this type of food [13,14]. Compared to conventional food products, organic foods are generally perceived as a healthier option, mainly because they contain more nutrients and do not use harmful substances such as chemical residues, pesticides, fertilizers, artificial additives, and preservatives in their production [6,10,17]. In this sense, several studies have revealed that consumer attitudes towards buying organic food are facilitated by health consciousness [10,13,17,26,27]. They have also demonstrated health consciousness to be the best motivator for purchasing organic food [6,13,26,27]. It should be noted that growing health concerns drive consumer demand for healthier products, such as organic food [17]. The results of a recent study by Nafees et al. (2022) [28] also indicate a relationship between consumers' attitude toward organic food and their intention to buy it, suggesting that those consumers who use organic food for health reasons have a greater affinity for organic food. Therefore, health-conscious consumers have more favorable attitudes towards organic food and higher purchase intentions for organic food. In light of the above arguments, the subsequent hypotheses are proposed:

H3. *Health consciousness positively influences attitudes towards organic food.*

H4. *Health consciousness positively influences purchase intentions towards organic food.*

2.5. Attitude, Purchase Intention and Purchase Behavior

Attitudes are considered one of the imperative antecedents of behavioral intention and actual behavior [4]. Results of recent studies have revealed that consumers' attitudes towards organic food have a positive and significant influence on their purchase intentions for organic food [8,12–14,17]. Behavioral intention can be defined as the willingness to perform a given behavior and is assumed to be an immediate antecedent of actual buying behavior [25]. However, studies persist that only explore purchase intentions for organic food as a single dependent variable, based on assumptions that intention predicts behavior [6,8]. Consequently, organic food purchase intention and actual purchase behavior should be studied simultaneously, as there may be a gap between intentions and actions [6,10,13,17]. In this sense, several studies confirm the positive and significant influence of consumers' purchase intention on their actual purchasing behavior for green products [4,29], and specifically for organic food [21]. In light of these arguments, the following hypotheses are proposed:

H5. Consumers' attitude towards organic food positively influences their intentions to buy organic food.

H6. Organic food purchase intentions positively influence the purchase behavior of these products.

3. Materials and Methods

3.1. Research Framework

Having the TPB as its basis, this study proposes a framework structure that illustrates the antecedents of purchase intention and behavior (Figure 1). The proposed model is based on the modification of the TPB through the proposal of two antecedents of intention to better explain the variation in the intention to purchase organic food and the actual behavior related to it. The variables social norms and behavioral control of TPB were excluded, since they have not been significant determinants in past studies [12–14], and variables such as health consciousness and environmental concern were incorporated as positive antecedents of the attitude towards organic food and purchase intention. The proposed model provides a theoretical basis for analyzing the relationship between environmental concern and health consciousness in the intention to purchase organic food, directly and indirectly, through the mediating role of attitude towards organic food and the relationship between purchase intention and current buying behavior for organic foods.

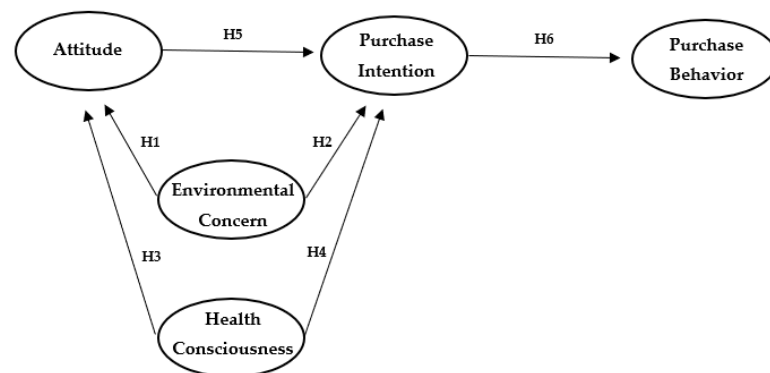


Figure 1. Research framework.

3.2. Questionnaire Design

The questionnaire design includes three parts. The first part considers consumer behavior, particularly about frequency of purchasing organic food, types of organic food purchased, and the amount of money spent on organic food, which allows the characterization of the sample to be sustained and the behavior to be better analyzed. The second part of the questionnaire comprises the operationalization of the variables of the study model. The scales were selected from a review of the literature and adapted to suit the study's context. All the variables were measured using seven-point Likert-type scales, with 1 representing "strongly disagree" and 7 representing "strongly agree". The questionnaire items and their reference source are listed in Table 2. The third part of the questionnaire was related to sociodemographic characteristics of respondents: gender, age, education, marital status, income, etc., and life cycle of respondents.

Table 2. Questionnaire items and their source of adoption.

| Variables | Measuring Items | Sources of Adoption |
|-----------------------|--|-----------------------------------|
| Environmental Concern | 1. The balance of nature is very delicate and can be easily upset. | [13], adapted from [30]. |
| | 2. Human beings are severely abusing the environment. | |
| | 3. Humans must maintain the balance with nature in order to survive. | |
| | 4. Human interferences with nature often produce disastrous consequences. | |
| Health Consciousness | 1. I chose food carefully to ensure better health. | [6,13,17], adapted from [31]. |
| | 2. I don't consider myself as health conscious consumer. ¹ | |
| | 3. I think often about health related issues. | |
| Attitude | 1. Buying organic food is a good idea. | [13], adapted from [32]. |
| | 2. Buying organic food is a wise choice. | |
| | 3. I like the idea of buying organic food. | |
| | 4. Buying organic food would be pleasant. | |
| Purchase Intention | 1. I am willing to buy organic vegetables instead of conventional vegetables while shopping. | [17], adapted from [33] and [13]. |
| | 2. I intend to purchase organic vegetables in the near future. | |
| | 3. I will make an effort to buy organic vegetables in the near future. | |
| Purchase Behavior | 1. I have been purchasing green products at regular basis. | [29], adapted from [34]. |
| | 2. I have green purchasing behavior for my daily needs products. | |
| | 3. I have green purchasing behavior over the past six months. | |

¹ Reverse item.

3.3. Data Collection and Sample Composition

To achieve the objectives of this study, a quantitative approach was conducted. The target sample consists of Portuguese consumers aged 18 years or over. Since there was no exhaustive listing of all elements of the population [35], we followed a non-probability convenience sampling, which is the most widely used technique in similar studies [6,13,14]. The choice of this method is due to the fact that there is not an exhaustive list of all the elements of the population, as well as because it is easy and quick to use and has a lower cost [35]. A non-probabilistic sample selection may result in some doubts regarding the final empirical conclusions; however, we believe in the possibility of representativeness of this study.

Regarding the data collection instrument, a self-completed structured questionnaire was designed based on measurement scales adapted from the existing literature. In addition to being the most appropriate instrument when taking into account the objectives of the study, a questionnaire provides greater quantifiability and objectivity to the study, as well as speed of application and efficiency in recording the data [35]. The research design to be applied will be a cross-sectional study, which involves collecting information from a single sample of population elements and carried out in a single moment. Although this type of design does not allow for the analysis of behavior changes, it presents a greater representativeness of the sample and low response bias compared to the longitudinal design [35]. The sample size target was also accessed. As a reference, Hair et al. (2014)

recommended that between five and ten responses for each estimated item would result in a sufficient sample size. Therefore, in order to determine the target sample size, a minimum number of 170 responses were considered (17 items \times 10 = 170).

In the first stage, the pilot version of the questionnaire was validated by a sample of 18 respondents. After the pre-test and all necessary changes were made, the data collection process was started. The final questionnaire model was applied online and distributed in Facebook, LinkedIn, organic food social network groups, and Portuguese organic food stores between the month of November 2022 to March 2023.

To avoid sampling bias based on [36], respondents who completed the survey questionnaires from November to December 2022 were considered as early responders ($n = 74$), while respondents who completed the survey questionnaires from January to March 2023 were defined as late responders ($n = 231$). Using an independent t -test samples, early and late respondents to the survey questionnaires were compared on a number of key characteristics, such as environmental concern ($p = 0.451$), health consciousness ($p = 0.207$), attitude ($p = 0.474$), purchase intention ($p = 0.385$), and purchase behavior ($p = 0.461$). Therefore, the Levene's test for homogeneity of variances was not significant with $p > 0.05$.

In total, 436 responses were obtained, of which 305 were valid for further analysis, yielding a valid response rate of 69.95%. According to the collected demographic data, 69.2% were women and the remaining 30.8% were men, while 73.4% lived in the north of Portugal. Regarding age, 30% were under 30 years old, 30.6% between 30 and 45 years old, 18.3% between 46 and 55 years old, 9.6% between 55 and 65 years old, and the remaining were all over 65 years old. In socio-economic terms, most of the respondents (24.3%) had a household income between 1501–2000 EUR. Regarding education, 35.1% had a bachelor's degree and 22.3% a master's degree, while most respondents were employed on behalf of others (48.2%). Regarding their behavior, 86.9% of respondents were organic food consumers and 74.8% were organic food buyers. The vast majority usually buy these products 1 to 2 times a week (60.5%) and buy mainly in local stores (49.5%). Up to 24.6% of respondents spend up to 10 EUR, 36% spend between 10 EUR and 20 EUR, and 39.5% spend more than 20 EUR. The most purchased organic products are vegetables, fruit, and cereals. Regarding life cycle, more than half of respondents are single (55.4%) and without children (63%). For the remaining percentage with children, 82.3% are over 7 years old and 17.7% are under 7 years old, while 78.8% live with their children.

3.4. Statistical Analysis

Data analysis involved preliminary analysis of data suitability [37] and other aspects (e.g., normality, multicollinearity, and outliers). After ensuring data normality, the non-existence of multicollinearity and outliers, data analysis was performed using the structural equation model (SEM). The results obtained with the application of the questionnaire were treated statistically using the software SPSS (Statistical Package for the Social Sciences) and AMOS (Analysis of Moment Structures) v20. Two study model of SEM was followed in the study: the measurement model and the structural model [38]. The measurement model was used to test the validity and reliability of the model, and the structural model was tested for the model fit and hypothesis testing.

4. Results

4.1. Measurement Model: Reliability and Validity

Construct reliability and validity were quantitatively assessed using the measurement model. Convergent validity was measured on the basis of three components: composite reliability (CR), factor loading, and average variance extracted (AVE). For assessing discriminant validity, the Fornell–Larcker criterion was applied. Finally, interitem internal consistency was ascertained using Cronbach's Alpha (α).

For analyzing indicator reliability, standardized loading for each indicator was checked (Table 3).

Table 3. Measurement items, factor loadings and Cronbach's Alpha.

| Variables | Measurement Items | FL * | FL ** | α |
|----------------------------|-------------------|-------|-------|----------|
| Environmental Concern (EC) | EC1 | 0.641 | 0.642 | 0.782 |
| | EC2 | 0.824 | 0.824 | |
| | EC3 | 0.728 | 0.727 | |
| | EC4 | 0.639 | 0.639 | |
| Health Consciousness (HC) | HC1 | 0.721 | 0.709 | 0.696 |
| | HC2 | 0.515 | - | |
| | HC3 | 0.741 | 0.752 | |
| Attitude (A) | A1 | 0.866 | 0.866 | 0.925 |
| | A2 | 0.896 | 0.896 | |
| | A3 | 0.915 | 0.915 | |
| | A4 | 0.808 | 0.808 | |
| Purchase Intention (PI) | PI1 | 0.876 | 0.876 | 0.924 |
| | PI2 | 0.952 | 0.952 | |
| | PI3 | 0.877 | 0.876 | |
| Purchase Behavior (PB) | PB1 | 0.953 | 0.949 | 0.920 |
| | PB2 | 0.944 | 0.949 | |
| | PB3 | 0.484 | - | |

Note: FL *: Factor loading before removing item PB3 and HC2; FL **: Factor loading after removing item PB3 and HC2.

The factor loadings of all measures in the studied context were acceptable, except for one item in purchase behavior (0.484) and one item in health consciousness (0.515), which were lower than the conventional cut-off (0.60) suggested by Hair et al. (2014). Therefore, to ensure the validity and reliability of the model, item PB3 and item HC2 were not considered at later stages of the investigation. The probable reason for not finding support for the PB3 item in our context could be that Portuguese consumers still don't buy organic food often (over the past six months). In addition, some studies have identified perceived barriers to the purchase of organic foods, such as the perceived high price and limited availability of these foods [6,17,20,39]. However, there is a lack of studies that assess the influence of negative antecedents (barriers) on choice behavior in organic food through a consistent scale. Regarding item HC2, people can opt for organic food for health reasons but do not consider themselves to be health-conscious consumers in general.

The Cronbach's Alpha (α) of the constructs were also checked (Table 3). It ranges from 0.696 to 0.925, which meets the acceptable limit of 0.7 or higher [38]. Further, the composite reliability (CR), the average variance extracted (AVE) and discriminant validity were measured and outlined in Table 4. The value of composite reliability (CR) ranged from 0.696 to 0.948, which implies that all constructs met the recommended criterion of 0.7 or higher [38]. The AVE value ranged from 0.507 to 0.901, which also met the acceptable lower limit of 0.5 [38]. The study measures possess sufficient discriminant validity since the square root of AVE of each construct was larger than the correlation between the constructs [40]. It can be summarized that the theoretical model represents an adequate validity (convergent and discriminant) and reliability.

Table 4. Validity and reliability analysis.

| | CR | AVE | MSV | MaxR(H) | HC | A | PI | PB | EC |
|----|-------|-------|-------|---------|-------|-------|-------|-------|-------|
| HC | 0.696 | 0.534 | 0.430 | 0.698 | 0.731 | | | | |
| A | 0.907 | 0.764 | 0.376 | 0.917 | 0.560 | 0.874 | | | |
| PI | 0.929 | 0.814 | 0.610 | 0.942 | 0.656 | 0.762 | 0.902 | | |
| PB | 0.948 | 0.901 | 0.610 | 0.948 | 0.550 | 0.613 | 0.781 | 0.949 | |
| EC | 0.803 | 0.507 | 0.314 | 0.822 | 0.378 | 0.560 | 0.528 | 0.396 | 0.712 |

Note: AVE = Average Variance Extracted; MSV = Maximum Shared Variance; MaxR(H) = Maximum Reliability.

The theoretical framework was tested for goodness of fit indices. The Confirmatory Factor Analysis (CFA) of the measurement model returned a good model fit: $\chi^2/df = 2.124$; RMSEA = 0.061; NFI = 0.947; CFI = 0.971; TLI = 0.956 (Table 5).

Table 5. Model fit estimates.

| | χ^2 | DF | χ^2/DF | RMSEA | NFI | CFI | TLI |
|------------------------|----------|----|-------------|----------|-------------|-------------|-------------|
| Reference ¹ | - | - | ≤ 3 | < 0.08 | ≥ 0.90 | ≥ 0.90 | ≥ 0.90 |
| Results | 169.927 | 80 | 2.124 | 0.061 | 0.947 | 0.971 | 0.956 |

¹ [38,41,42].

The absence of collinearity among all the constructs' indicators was also determined by estimating the variance inflation factor (VIF) indicator which was inferior to 5 [43], thus evidencing no collinearity.

4.2. Structural Model: Hypothesis Testing

After achieving a better fit of the measurement model, the SEM of the structural model also showed a good model fit: $\chi^2/df = 2.058$; RMSEA = 0.059; NFI = 0.946; CFI = 0.971; TLI = 0.959. Based on these results, it can be inferred that the proposed theoretical framework represented a good data fit and that it could predict outcome variables satisfactorily. SEM was further performed using the maximum likelihood estimation method to evaluate the model hypotheses proposed. Results of the path analysis and verification of hypotheses are presented in Figure 2 and Table 6.

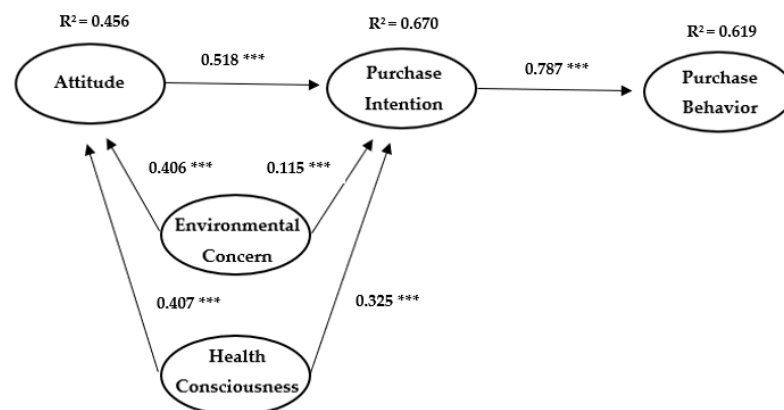


Figure 2. Path within the hypothesis model. Note: *** = statistically significant.

Table 6. Path analysis results and hypothesis verification.

| Hypothesis | Hypothesized Path | β | S.E. | <i>t</i> -Value | <i>p</i> -Value | Results |
|------------|-------------------|---------|-------|-----------------|-----------------|-----------|
| H1 | EC → A | 0.406 | 0.125 | 5.906 | *** | Supported |
| H2 | EC → PI | 0.115 | 0.094 | 2.073 | 0.038 | Supported |
| H3 | HC → A | 0.407 | 0.107 | 5.576 | *** | Supported |
| H4 | HC → PI | 0.325 | 0.091 | 4.861 | *** | Supported |
| H5 | A → PI | 0.518 | 0.061 | 7.936 | *** | Supported |
| H6 | PI → PB | 0.787 | 0.064 | 14.357 | *** | Supported |

Note: *** $p < 0.01$; β = Standardized regression weights; S.E. = Standard Error; *t*-value = Critical Ratio.

The R² or the coefficient of the determination for the three endogenous variables of attitude, purchase intention, and purchase behavior were 45.6%, 67%, and 61.9%, respectively, meaning that they were higher than 10% [44].

The results show that environmental concern has a significantly positive effect on attitude ($\beta = 0.406$, $p < 0.01$), supporting H1. Similarly, the relationship between envi-

ronmental concern and purchase intention ($\beta = 0.115, p = 0.038$) was significant, as such H2 was supported. Health consciousness has a significant and positive relationship with attitude ($\beta = 0.407, p < 0.01$) and purchase intention ($\beta = 0.325, p < 0.01$), supporting H3 and H4, respectively. Similarly, attitude has a significant and positive relationship with purchase intention ($\beta = 0.518, p < 0.01$). Finally, purchase intention has a significant and positive relationship with purchase behavior ($\beta = 0.787, p < 0.01$). These results provide support for H5 and H6.

5. Discussion and Implications

The main purpose of this study was to determine the antecedents of consumers' purchase intention and purchase behavior toward organic food. The TPB model was used as its basis and extended by including new constructs in it. The results showed that environmental concern and health consciousness significantly influenced the consumers' attitudes towards organic food, which validated the findings of Thøgersen et al. (2015) and Janssen (2018). Moreover, the findings suggested that consumers with high environmental concern and with high health consciousness will prefer organic food. Likewise, environmental concern demonstrated a significant positive influence on intention to purchase organic food. This contradicts Yadav and Pathak (2016) findings, which indicate that egoistic motives, such as health consciousness, take precedence over altruistic motives, such as environmental concern, when deciding whether to purchase organic food products. This is a major contribution to the literature, as most of the literature has accessed the relationship between environmental concern and attitude directly and indirectly to behavioral intention [17,19,26]. Thus, the health and environmental-related issues are important attributes for Portuguese consumers regarding the intention to buy organic food, achieving the first objective of the study.

Regarding the TPB variables, attitude was the most significant predictor of purchase intention. This suggests that consumers with higher attitudes towards organic food are likely to possess high purchase intention and favorable choice behavior toward an organic food purchase. This is consistent with the findings of Pham et al. (2019) and Koklic et al. (2019). Thus, the second objective of the study, which was access the relationship between attitude and purchase intention, was achieved. Finally, the study findings confirm a significant association between purchase intention and purchase behavior, achieving the third objective of the study. This finding is consistent with what was being proposed in the Theory of Planned Behavior (Ajzen, 1991) and the work of Wee et al. (2014), who stated that Malaysian consumers with intentions to buy organic food will exhibit higher actual buying rates than those customers who demonstrate that they have no intention of buying.

From the research conducted within this paper, important implications can be derived for both theory and practice. When it comes to the theoretical contribution, the study has proven the applicability of a well-established social-psychological model (TPB) for measuring consumer organic food purchase intention in the Portuguese context. By incorporating extra variables, such as environmental concern and health consciousness, in the TBP model, this study has made significant contributions to the expanding research on organic food consumption, especially in the context of a developed country. The findings supported the incorporation of environmental concern and health consciousness in the TBP model as both constructs significantly influenced the consumers attitude, and environmental concern had a positive and significant effect on consumers' intention to buy organic food. Further, this study sought to address some of the weaknesses reported in previous studies. Namely, it is a response to frequent requests to investigate beyond consumer intent and assess influences on actual behavior.

In practical terms, knowledge of the influence of factors that motivate consumers to buy organic food will allow producers and marketing professionals to develop strategies to attract this market segment and encourage the purchase of organic food. In particular, companies can communicate their marketing messages effectively to change or influence consumer attitudes and behaviors towards organic food. In this sense, communicating the

benefits of consuming organic food for human health and the environment and providing sufficient information about the product can encourage the purchase of organic food, especially for price-sensitive consumers. Likewise, the results of this study can be especially inspiring for companies to focus not only on economic profits, but also to ensure a balance between the environment and the ecosystem, through more sustainable management.

6. Conclusions

The growing consumerism of the population and the increase in environmental problems have highlighted the need to develop new eating habits and environmentally sustainable consumption. As a result, there are changes in society's conventional consumption patterns and buying behavior in the search for environmental sustainability. Currently, consumers see companies not only as profit centers, but also as establishments sensitive to environmental and social problems. In this context, organic food stands out, in which consumer demand for organically produced food has been expanding rapidly. Consequently, environmentally sustainable consumption has become an important focus for organizations, which have been changing their production patterns towards more sustainable goods in order to respond to the needs and desires of current and potential consumers. This study aimed to explore the antecedents of intention and behavior regarding the purchase of organic food in the Portuguese context. A questionnaire was completed by Portuguese consumers, and structural equation modeling (SEM) was used to test the research hypotheses. The role of environmental concern and health consciousness in the attitude towards organic food was highlighted, as well as in the significant relationship between attitude and purchase intention, and the role of purchase intention in the purchase behavior.

Future research could use a larger and more representative sample. The current study examined organic food in general, not differentiating between various food products, such as organic fruit, organic vegetables, organic meat, organic milk, etc. This could restrict the ability to make generalizations based on findings. To address this, future studies could investigate and contrast consumer intentions and behaviors towards different varieties of a particular organic food product. Furthermore, this study and most prior research has focused on assessing the positive antecedents of intention and purchase of organic food. However, for obtaining a holistic understanding of consumer behavior toward organic food, it is imperative to understand the barriers or reasons for not buying organic food. Thus, future studies could add other variables to the TPB model and barriers to buying organic food, such as price, availability, etc.

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