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Organic Food Purchase and the Influence of Personality Traits: a study with Portuguese Consumers

Abstract

Consumer concerns with the quality of their diet and with the origins of food products is a current and important topic in marketing research. It is evident that consumers are increasingly purchasing organic products primarily for health and environmental reasons. However, this pattern of behavior is not homogeneous and may depend on demographic and psychographic variables. Presently, knowledge on Portuguese attitudes towards organic food is still scarce. This study aims to contribute to fill a gap in literature concerning the extent to which personality traits may affect Portuguese consumers' predisposition to buy and consume organic food products. Specifically, it has two objectives (i) to describe the buying habits of organic products; (ii) to categorize personality traits that influence this purchasing decision. A quantitative methodology based on an online questionnaire to a sample of 375 respondents was adopted and multivariate analysis methods were used in the evaluation and collection of statistical data to clarify and explain relationships among the different variables. Main results suggest that the major indicators for buying organic food products are: local production, social responsibility, health and quality, diet options and consumer routines. Moreover, online stores are identified as the preferred place to purchase organic food products, and durability and cost play an important role regarding the selection of products to be purchased. Finally, the personality traits that seem to play a significant role in people who buy organic products are Conscientiousness, Extraversion and Agreeableness.

Key Words
Consumer behavior, marketing strategy, market segmentation, organic food, personality traits.

JEL Classification: D18, M31

Introduction

In recent years, consumers around the world are increasingly analysing the origin of prodution of food items and purchasing organic food (*e.g.*, Bazzani, Caputo, Nayga Jr, & Canavari, 2017; Xie, Wang, Yang, Wang & Zhang, 2015) mainly because they are aware of the harm caused by agrochemicals' presence in food, or are concerned with maintaining their long-term health and protecting the environment (*e.g.*, Aprile, Caputo & Nayga Jr., 2012; Magistris & Gracia, 2014). However, this type of attitude and behavior is still not common to all consumers and may depend on the socio-demographic and psychographic characteristics of each individual, among other factors.

Extant literature delved into distinct segments of consumers regarding local and organic food (Aprile, Caputo, Nayga, 2016; Gracia, Barreiro-Hurlé, & Galán, 2014) and its importance for marketing planning. In this context, a personality trait in an individual is a characteristic pattern of thinking and behavior that tends to be consistent over time in different situations (Soto, 2018). Previous studies have shown that the profile of individuals is an important element that influences their assessment of organic food products (Campbell, Mhlanga & Lesschaeve, 2013, Costanigro *et al.*, 2014, Gracia *et al.*, 2014), and their beliefs and attitudes can shape consumer preferences and behaviour in relation to this type of products (Costanigro *et al.*, 2014, Yangui, Costa-Font & Gil, 2016). Moreover, some authors analysed the repercussions of individuals' personality traits on consumer food preferences, for example, related to eating more or less spicy flavors, opting for sweet or bitter tastes (Byrnes and Hayes, 2013, Robino *et al.*, 2016, Saliba, Wragg & Richardson, 2009) or choosing a specific dish (Grebitus, Lusk & Nayga, 2013).

Despite the increased research interest in this topic, the influence personality traits can have on the consumer buying decision towards organic food products has remained generally disregarded and only a few academic studies considered this aspect. Grebitus and Dumortier (2016) showed that differences in personality affected consumer preferences and willingness to pay for organic products, since personality has a differential impact with regard to predicting demand: the more agreeable the consumers, the higher their demand. On the other hand, Bazzani *et al.*, (2017) found that personality traits can be sources of heterogeneity in consumers' preferences for locally produced food items: more caring personalities are more likely to choose locally produced food items, while more extraverted personalities tend to dismiss the locally produced claim. Recently, Gustavsen and Hegnes (2020) probed the relation between individuals' personality and the choice of organic foods using the Big Five personality model (Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness to Experience). Results of their study indicate that: Extraversion is negatively related to the attitudes towards organic foods; Agreeableness shows some positive relations with attitudes towards organic foods; individuals with a high level of Conscientiousness have a lower level of willingness to pay for organic foods compared with conventional foods; Openness to Experience is positively related to attitudes towards organic foods.

The relevance of this research area and the fact that information on Portuguese consumers' attitudes towards organic food is still scarce, justified this study and its two different objectives (i) describe the buying habits of organic products; (ii) categorize personality traits that impact this purchasing decision. To the best of our knowledge,

studies focusing primarily on the impact personality traits may have on demand and consumption of this type of products among the Portuguese population have not been conducted yet. Thus, this quantitative research contributes to literature by providing insights on the characterization of the segments that present a higher level of predisposition to purchase organic food products.

1. Methods of Research

The study adopted a quantitative methodology. This approach was considered adequate based on similar studies which carried out the same methodological procedures successfully (*e.g.*, Gustavsen & Hegnes, 2020). Data collection took place between 15 December 2020 and 14 January 2021. The data was gathered online via a Google Docs questionnaire and made available to a convenience sample of Portuguese consumers by the snowball technique. The questionnaire was structured into three sections aimed at (i) identifying the buying habits of organic products, (ii) describing socio-demographic data, and (iii) categorizing personality traits.

The first section of the questionnaire consisted of 31 closed questions on the following aspects: places where respondents usually purchase products, the frequency of purchase, the characteristics associated with organic products, the research habits for organic products and the respondents' routines towards a sustainable behavior. A typical 5-point Likert scale, from 'Never' to 'Always', in which respondents specify their level of agreement to a statement, was used. In the second section of the questionnaire, 5 questions were targeted to sociodemographic data regarding gender, age, marital status, education, and professional occupation. Finally, the third section involved the 60 items stated by Soto and John (2017) to hierarchically assess the Big Five personality dimensions and 15 more specific facet traits. For each of these 60 statements, respondents had to choose among a 5-item Likert scale from 'Strongly Disagree' to 'Totally Agree'. Those traits identify the big 5 personality dimensions: Extraversion (outgoing/energetic vs. solitary/reserved); Agreeableness (friendly/compassionate vs. critical/rational); Conscientiousness (efficient/organized vs. extravagant/careless); Neuroticism (sensitive/nervous vs. resilient/confident); and Openness to Experience (inventive/curious vs. consistent/cautious). As some of the assertions used were presented in an inverse way, they also had to be interpreted following the same reasoning. For example, for the dimension Conscientiousness, that includes traits like organized, thorough and planful, the assertion "Sometimes I behave irresponsibly" needs to be interpreted inversely: the more a person demonstrates conscientiousness, the more he/she disagrees with the sentence.

A total of 375 valid responses were received. The sample involved 67% (250) of female respondents with different characteristics (see

Table 1).

Table 1: Sample characterization

Marital status		Single	Married	Divorced/Separated	Other
		63% (237)	31.5% (118)	3.5% (13)	2% (7)

Education level		<= 9th grade	12th grade	Undergraduation	Master or PhD
		17% (66)	57% (214)	19% (70)	7% (25)
Professional occupation	Unemployed	Employed	Student	Working student	Other
	7% (25)	54% (205)	26% (96)	10% (36)	3% (13)
Age	<18	[18, 24[	[24, 45[	[45, 65[	>=65
	3% (12)	45% (169)	39% (144)	11% (41)	2% (9)

Source: Authors

Multivariate analysis methods were used in the evaluation and collection of statistical data to clarify and explain relationships between different variables that are associated with this data. Cronbach's alpha test was also applied, namely to see if multiple-question Likert scale surveys were reliable. The Kaiser-Meyer-Olkin (KMO) test measured how suitable our data was for a factor analysis. In addition, to check whether there was a redundancy between variables that could be summarized with some factors, this analysis used the Bartlett's test for Sphericity.

Under the umbrella of factorial analysis, the study applied an exploratory factor analysis as a dimensionality-reduction method to decrease the number of variables of the data set, while preserving as much information as possible. To determine the number of factors to extract, the most used two different techniques were combined: the total variance explained and the Scree Plot. For the first, the eigenvalue higher-than-1 rule was applied, retaining only the variables that satisfied this criterion, based on the rationale that each selected principal component is intended to explain at least as much variance as each of the standardized variables. As this technique has the potential to overestimate/underestimated results, it needs to be used with caution (Marôco, 2021). That is why the Scree Plot's graphical test was also performed, to complement the analysis. Conventional statistical significance levels were considered. The statistical analysis was conducted using SPSS V. 27.

2. Results and Discussion

To analyze the internal consistency of the variables, Cronbach's α was used. Since the values found for both the 31 variables corresponding to the buying habits of organic food and the remaining 60 relating to personality traits were 0.867 and 0.913, respectively, it is possible to consider a very good consistency among the variables of each group. Then, a principal component analysis was carried out to reduce the dimensionality of the variables in each group, looking for the smallest number of components that may explain the correlation within each group of the original variables (Pestana & Gageiro, 2014).

As the KMO test is extremely significant (Table 2), the factor analysis was considered useful. Also, and for both variable groups, the p-value < 0.001 led us to believe that the original variables in each group were significantly correlated.

Table 2 - KMO and Bartlett's values

KMO and Bartlett's test for organic food		
Kaiser-Meyer-Olkin Sampling adequacy measure		,843
Sphericity test of Bartlett	Chi-square approximation	4568,492
	df	465
	Sig.	,000

KMO and Bartlett's test for personality traits		
Kaiser-Meyer-Olkin Sampling adequacy measure		,870
Sphericity test of Bartlett	Chi-square approximation	10538,167
	df	1770
	Sig.	,000

Source: Authors

To decide how many factors to retain, we considered both the Total Variance Explained and the Scree Plot methods. Beginning with the first procedure, the analysis indicated the retention of 8 components out of the 31 organic food variables (which accounted for 63.204% of the variance obtained) and 14 out of the 60 variables for the personality traits (which accounted for 63.838% of the variance obtained).

Regarding the organic food variables, the extraction values (that tell us the proportion of variance for each variable that can be explained by the factors) are particularly high for some variables (see Table 3), meaning that the extraction values are valid.

Table 3: Proportion of variance explained (organic food)

	Variable	Extraction value
Place where organic products are purchased	Online stores	0.746
	Facebook	0.727
	Dedicated physical stores	0.613
Reason for the option for organic products	Portuguese origin	0.649
	Recyclable packaging	0.682
	Local products	0.676
Organic products' features	Higher quality	0.770
	Tastier	0.705
	Priced too high	0.700
	Healthier	0.697
	Last less	0.671
	Fair price	0.664
Organic products purchase routine	If I like them I become a regular customer	0.794
	I have favorite brands and establishments	0.760
	I consider quality	0.617
	I search for product information	0.616
Habits of sustainable lifestyle	Avoid polluting the environment	0.681
	Follow a restrictive diet	0.623
	Recycle	0.608

Source: Authors

Also, and among the 8 components for the reduction of the organic food variables, Table 4 suggests the variables that contribute with the strongest loadings in the component. Moreover, the variables that load high provide a good indication on that specific component's measuring. Thus, considering the characteristics the items had in common, 8 components were established, according to **Chyba! Nenalezen zdroj odkazů.**. Results show that a preference for local and socially responsible products, of a healthier nature and presenting a higher quality, as well as consumer routines, diet options and information on products, are the main indicators for buying organic food. Moreover, results indicate that online stores are identified as the preferred place to purchase organic products, and durability and cost play an important role regarding the selection of products to be purchased. These results are in accordance with some previous literature (*e.g.*, Aprile *et al.*, 2012; Aprile *et al.*, 2016; Bazzani, *et al.* 2017; Magistris &

Gracia, 2014), suggesting that respondents are concerned about the environment, but also about their health.

Table 4 - Variables' contribution to the components (organic products)

Components							
Local & Socially Responsible Products		Healthier Nature & Quality	Consumer Routines	Diet Options & Product information	Online Purchase	Durability & Cost	
1	2	3	4	5	6	7	8
Recyclable packaging (0.782)	Avoid environmental pollution (0.706)	Higher quality (0.848)	Become a regular customer (0.838)	Fair price (0.680)	Online stores (0.854)	Last less (0.797)	Fair price (0.731)
Social responsibility (0.779)		Tastier (0.805)	Favorite brands and establishments (0.836)	Vegetarian/Vegan diet (0.672)	Facebook (0.826)		Priced too high (0.629)
Local products (0.777)		Healthier (0.797)		Restrictive diet (0.629)			
Portuguese origin (0.747)				Product information (0.600)			

Source: Authors

On the other hand, using the Scree Plot for the 31 organic products variables (Graphic 1), our suggestion would be to retain only the first three factors, which is compatible with our previous findings. So, combining both results, Local & Socially Responsible Products, Healthier Nature & Quality, and Consumer Routines seem to be the primary causes that justify consumers' option for organic food.

Graphic 1 - Scree Plot for organic products' variables
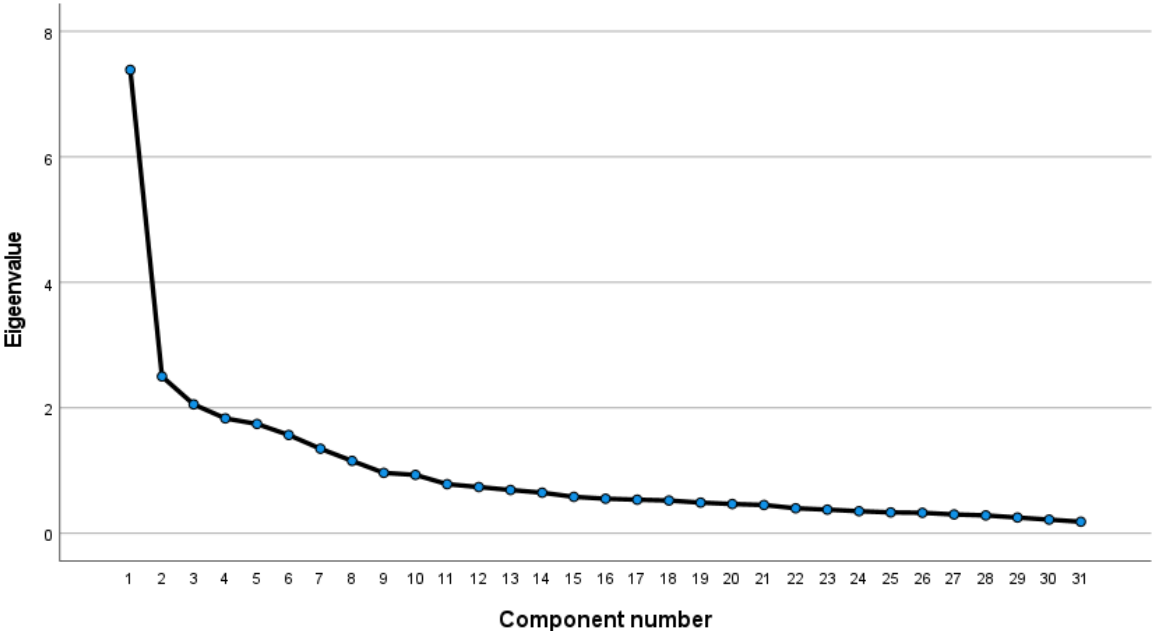
As regards to the personality traits' variables, the extraction values are particularly high for some of them (see Table 5), therefore reliable. These proportions seem to show a tendency to display self-discipline, related to the way people control, regulate, and direct

their impulses ("I do not leave things untidy", "I am systematic, I like to keep things in order", "I keep things clean and organized" or "I am persistent, I work until I complete the task"). Curiously, we can infer that people with these personality traits also tend to be extroverted, at least in terms of engagement with the external world, and enjoy interacting with people ("I do not tend to be quiet", "I am talkative", or "I do not prefer others to take control").

**Table 5: Proportion of variance explained (personality traits)**

	Variable	Extraction value
Extraversion	I tend to be quiet (inverse)	0.750
Conscientiousness	I leave things untidy (inverse)	0.736
Conscientiousness	I am systematic, I like to keep things in order	0.726
Conscientiousness	I keep things clean and organized	0.713
Conscientiousness	I am persistent, I work until I complete the task	0.712
Extraversion	I am talkative	0.707
Agreeableness	I distrust of the intention of others (inverse)	0.706
Extraversion	I prefer others to take control (inverse)	0.702
Agreeableness	Sometimes I am rude to others (inverse)	0.700

Source: Authors

Results suggest that people who care more about biological products are more prone to Conscientiousness and Extraversion, and the Agreeableness trait seems also to contribute to the profile of these consumers, which partially resonates with the findings of extant literature (Grebitus & Dumortier, 2016; Gustavsen & Hegnes, 2020).

Moreover, from the Scree Plot (Graphic 2), results show that the first two components for the personality traits (out of the 14), are responsible, respectively, for 17.794% and 11.802% of the total variance explained (with the other twelve components being responsible for less than 5.5% each).

Graphic 2 - Scree Plot for personal traits' variables
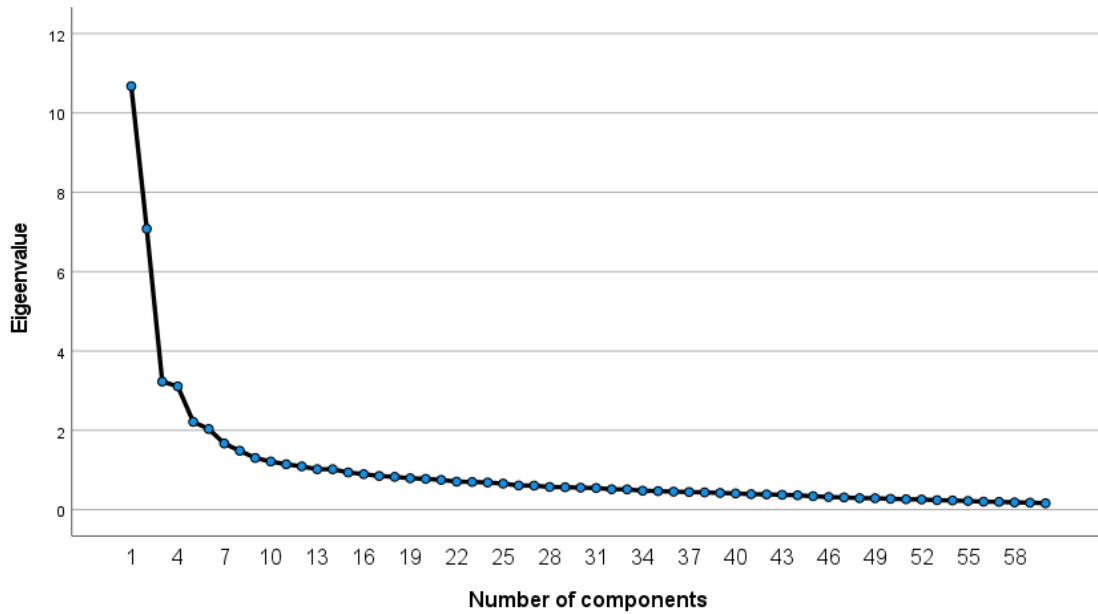
Results also indicate that being reliable (0.701), polite (0.653) and respectful (0.607) are the variables that contribute with most strong loadings in the first component. On the other hand, but in the same line, not leaving things untidy (0.617) and not tending to find faults in others (0.608) are the variables that most contribute to the second component. Hence, the personality traits that seem to be most related with people who buy organic products are those that, somehow, pertain to individuals that tend to be organized, engaged with the external world, and willing to compromise their interests with others, confirming previous studies on how consumer profile impacts the evaluation of and preferences for organic food products (*e.g.* Costanigro *et al.*, 2014, Gracia *et al.*, 2014; Aprile *et al.*, 2016).

Conclusion

This study describes the buying habits of Portuguese consumers of organic food products, and cathegorizes personality traits that impact this purchasing decision. The quantitative methodology applied to the collected data was based on an online questionnaire. Multiple multivariated analyses allowed researchers to assess, clarify and confirm relationships among variables.

The observation of the variables' contribution to the components revealed expressively high levels of consistency among them. Also, the main indicators for buying organic food products and the preferences of consumers can be listed in the following components: Local & Socially Responsible Products; Healthier Nature & Quality; Consumer Routines; Diet Options & Product Information; Online Purchase; Durability & Cost. These indicators can further be broken down into additional information regarding buying habits: preferred places to purchase organic products, the final purchasing decision process, characteristics mostly associated to organic products, as well as main purchasing routines and lifestyles. In this context, the sample shows consumers who are informed and have routine purchasing patterns concerning organic food products.

Respondents have a preference for online purchase or dedicated physical stores, with indicators including origin of product, recyclable packaging and local production. Moreover, organic food products are considered as having higher quality, being tastier and healthier, but also normally more expensive and with a shorter lifespan. Thus, it can be concluded that consumers who opt for organic food products are mainly concerned with environmental pollution, recycling and healthier diets.

Regarding the characterization of personality traits and their impact on consumer behavior, results suggest that people who care more about biological products are more prone to Conscientiousness and Extraversion. The Agreeableness dimension seems also to contribute to the profile of these consumers. Overall, the personality traits that tend to play a major role in people who buy organic products are being organized, engagement with the external world, and willingness to compromise. Grebitus and Dumortier (2016) and Gustavsen and Hegnes (2020) had shown precisely that differences in personality affected consumer preferences and attitudes towards organic food products.

This study describes the buying habits of Portuguese rneverneespondents concerning organic food products and highlights that intrinsic characteristics present in personality traits can guide consumers' preferences in a relevant way, resulting in important insights to academics and practitioners interested in this topic, as well as to marketing professionals that intend to promote selling of organic products. However, due to the sampling method, the results cannot be generalized to the Portuguese population. In addition, the difference in results of this study when compared to Gustavsen and Hegnes (2020) can be primarily due to the alternative methodological analysis and to the multiple observation of variables individually. Further and broader studies would be needed to confirm the proneness of certain segments to buy organic food products based on personality traits.

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