

The Repurchase Intention of Organic Food: Comparison Between a Theoretical and a Nested Model

Luciene Eberle¹(⊠) , Gabriel Sperandio Milan¹ , Felippe De Farias², Ana Paula Graciola¹, and Suélen Bebber²

¹ Universidade do Vale do Rio dos Sinos, Rio Grande do Sul, Brazil
 ² Universidade de Caxias do Sul, Rio Grande do Sul, Brazil

Abstract. The Studies concerning environmental awareness seek to understand the problems and the impact that human behavior can cause to the environment. In this sense, in this research, we investigated some of the main determinant factors of organic product repurchase intention, among them, environmental awareness and consumer attitude. For this purpose, the research was operationalized through a survey, comprising a sample of 249 organic food consumers from Serra Gaúcha -Brazil. For data analysis, we applied structural equation modeling, comparing the results of the initial theoretical model with a nested model. The results proved that the relationship between environmental awareness influencing consumer attitude (theoretical model) presents better fit indexes and higher explanation power than the relationship between consumer attitude influencing environmental awareness (nested model), even confirming that these two constructs are determinants of organic food repurchase intention. It should also be noted that in the case of the coefficient of determination, the Theoretical Model presented a better explanatory power (87%) compared to the Nested Model (86.3%) of organic food repurchase intention by Brazilian consumers. From a managerial perspective, this study provided a broader understanding of the importance of expanding the supply and exposure of organic food (or products), taking advantage of the distribution networks that expose in greater quantity and with more quality the possible benefits associated with the consumption of these products, and the potential associated with greater environmental awareness and a more favorable consumer attitude.

Keywords: Environmental awareness \cdot Consumer attitude \cdot Repurchase intention \cdot Structural equation modeling \cdot Nested model

1 Introduction

The environment has changed considerably worldwide because of factors such as climate change, air and water pollution, waste generation, and natural disasters (Maichum et al. 2016). We have then perceived that environmental problems and their adverse impacts on human beings have become an important issue to be analyzed by academia (researchers),

© IFIP International Federation for Information Processing 2022

Published by Springer Nature Switzerland AG 2022

O. Canciglieri Junior et al. (Eds.): PLM 2021, IFIP AICT 639, pp. 179–193, 2022. https://doi.org/10.1007/978-3-030-94335-6_13 governments, and private or third sector organizations. Following this reality, the consumer begins to demonstrate this concern with the environment, opting at certain times for ecologically correct, sustainable, or green products (Yadav and Pathak 2016).

In this sense, we need to overcome difficulties in the field of production, distribution, dissemination, marketing, and consumption of organic products, more specifically, organic food. In emerging or developing countries, such as Brazil, there is a more significant concern for causes related to environmental degradation. Therefore, public policies and future work should direct their efforts towards overcoming problems such as the reduced volume of agroecological production, little diversity, and regularity in the supply of eco-friendly or organic products, disarticulation between supply and demand, infrastructure and logistics problems (Darolt et al. 2016).

Similar to conventional food production, organic food production begins with the consolidation of the land and ends with the packaging of the final products. This involves many time-consuming processes, including the preparation of resources such as soil and water resources, sowing seeds, pest control, harvesting, and processing (Han et al. 2017), not to mention product distribution, increasing access to consumers (Anninou and Foxal 2017).

Consumer demands for authentic and natural products with health-giving properties led to the development of several studies (Soares et al. 2017). As a result, consumer selectivity has become a challenge for organizations (Wisenblit et al. 2013). Therefore, the objective of this study was to propose and test a theoretical model and a nested model that contemplated environmental awareness and consumer attitude as antecedents of organic food repurchase intention by Brazilian consumers. When prioritizing organic foods, consumers also prioritize a healthier lifestyle, which tends to enhance the quality and perceived value of consuming this type of food (Suh and Lumbers 2015; De Toni et al. 2017).

This study's research problem aims to help to understand the determining factors associated with consumers' intention to repurchase organic food, contributing with theoretical and managerial implications on this growing niche market in the world and Brazil. After all, there is multiple evidence that motivates the consumption of these foods, from altruistic aspects related to the environment, environmental awareness, animal welfare, and fair trade, to individual aspects such as health concerns, better nutrition, food safety, taste or food preference, and product freshness (Bravo et al. 2013). Consequently, the hypothesized relationships and the influence of one construct on the other guided the research: (i) environmental awareness and consumer attitude; (ii) consumer attitude and repurchase intention; versus (iii) consumer attitude and environmental awareness; and (iv) environmental awareness and consumer intention to repurchase organic food.

2 Theoretical Background and Research Hypotheses

Afonso et al. (2016) point that environmental awareness is the willingness of individuals to deal with issues related to the environment, ecology, being fundamental to the solution of the problems of waste generation and also emphasizing the role of environmental education (He and Liu 2018), which can improve the consumption profile and quality of life of populations.

Besides, environmental awareness drives people to make greener purchasing decisions, tending to change their behavior to improve the environment and their quality of life (Suki and Suki 2015; Journeault 2016). Thus, the consumption behavior of organic products can be facilitated by better disclosure and proper labeling, because by demonstrating the contribution to environmental protection to consumers, they have the opportunity to make more appropriate choices through a better level of information (Maniatis 2016; Uehara et al. 2016) about the foods they consume.

The aggravation of environmental problems has concerned nations and governments. However, it has also increased pressure from organizations on politicians (or governments) and managers (or companies) who, together with consumers' environmental awareness, are driven to take specific actions and begin to stimulate or produce environmentally friendly products to prevent environmental pollution and minimize or eliminate hazardous waste (Ari and Yilmaz 2016; Akerlof 2017).

Ecological products, in this case, organic food, will become a trend with increased consumer awareness and government regulations. Because of this, for a manufacturer who aims at long-term sustainable development and profits, green production can be an essential strategy adopted in business (Yu et al. 2016). In this sense, the promotion of organic food consumption has been growing worldwide, driven by consumer demand, which in turn has been stimulated by a series of government measures. Such measures include campaigns to alert consumers to the use of pesticides, or to promote these products, organic food labeling schemes and requirements, as well as initiatives by actors in the food chain, especially retailers (Mørk et al. 2017), involving large global or national networks up to small commercial establishments (Zhang et al. 2019).

In the context of sustainable consumption, the attitude towards behavior can be considered an individual or intrinsic value (Suki and Suki 2015). Attitude is a composite of various behaviors, and any behavior performed involves costs or sacrifices (monetary or non-monetary), as it requires personal resources such as time, money, or physical effort. Given this, a variety of different acts express one's level of attitude, and its manifestation can be anticipated through analysis of the individual's behavior in evidence (Wated and Sanchez 2015).

Concerning sustainable or environmentally friendly food, positive attitudes relate to consumer recognition of aspects such as quality, safety, freshness, and health benefits. However, as much as there is a favorable manifestation of the consumer attitude, the available budget may be a limit to the consumption of this type of product (Elen et al. 2013).

In contrast, companies can influence attitudes, the multifaceted mental state of consumers, which involves beliefs, feelings, values, and character associated with the propensity to act in an environmentally friendly manner, presenting environmentally correct or more appropriate behaviors. These acts will motivate consumers' purchase and repurchase intentions, influencing their normative beliefs, changing their assessments, and modifying them with new concepts (Barber et al. 2012). In the choice and consumption of organic food, values related to health and environmental concerns strongly influence consumer attitudes towards repurchasing this type of food (Kriwy and Mecking 2012).

The repurchase intention refers to the willingness of the consumer to repurchase a product in the future, being influenced by consumers' perceptions of utility and hedonic values that affect their behavior (Wang and Yu 2016). It is worth noting that the intention or willingness to repurchase allows the consumer to perceive the recognition of the existence of a particular product for their consumption and the solution of their existing problem or demand (Paul and Rana 2012).

Thus, the intention to repurchase organic food is an individual's judgment about the purchase of the same product or service from the same origin or company that takes into account its current situation and the likely circumstances generated by its consumption, i.e., consumers have the perception that the given product offers quality or characteristics appropriate to their needs, wishes or expectations (Lee and Yun 2015; Wu et al. 2015).

Therefore, understanding and gauging repurchase intention presupposes that the consumers' future behavior depends on their attitudes, and internal and external norms, beliefs and values support the intention to repurchase even other products of the same brand (Keiningham et al. 2015; Lee and Yun 2015; Wu et al. 2015). In light of this, the tested Initial Theoretical Model verifies the relationship of environmental awareness and consumer attitude constructs as determinants of consumers' intention to repurchase organic food. Thus, the proposed Initial Theoretical Model is presented in Fig. 1, as well as the respective research hypotheses.

 H_1 : Consumer's environmental awareness positively influences consumer attitude towards organic food consumption; and.

H₂: Consumer's attitude positively influences organic food repurchase intention.



Fig. 1. Initial theoretical model and research hypotheses.

From a marketing perspective, the intention to repurchase is linked to the central attitudes to which consumers tend to respond favorably when evaluating the brands and offers of companies that are perceived to be consistent with their individual values and objectives (Bian and Forythe 2012).

The intention determines the specific behavior of a person, and in order to change this specific behavior, it is necessary to change the intention to perform such behavior. Intention to behave, or behavioral intent, is an indicator that can predict whether consumers will remain or change their choice of a particular company, brand, product or service and, more specifically, in the case of the intention to consume green or environmentally friendly products, can directly influence the repurchase behavior of organic products (Suki and Suki 2015). It is a belief that some consumers are willing to pay more for the privilege of making a green purchase and repurchase, i.e., of an environmentally friendly or organic product (Paul and Rana 2012). Currently, a significant portion of consumers are increasingly aware of the dangers associated with the possibility of toxic substances in foods and, therefore, prefer the ones labeled as organic (Soares et al. 2017). However, most consumers do not have the technical knowledge to control the basic requirements that distinguish organic food from conventional food, especially regarding the chemical elements (inputs) that may have been used. Therefore, the concept of "organic food" can be treated as a quality and credible "brand," although it is necessary to rely on the integrity of the producer and the distributor or retailer, which is essential for the consumer to start buying this type of product regularly (Nuttavuthisit and Thorgesen 2017).

Green consumption refers to the preference of the individual consumer for companies, brands and products that are less harmful to the environment and their health. It's also related to ethical consumption and to environmental performance on the part of companies and producers, also combined with corporate social responsibility (Rustam et al. 2020; Nguyen and Nguyen 2019).

In this direction, Xu et al. (2020) point out that, recently, some studies have shown that consumer environmental awareness is increasing considerably (Du et al. 2018). Extending this discussion, we also decided to test a Nested Model, verifying consumer attitude and environmental awareness as determinants, in this order, of consumer's intention to repurchase organic food, differently as theorized in the Initial Theoretical Model, presented in Fig. 1. In this way, the Nested Model, the alternative to the Initial Theoretical Model, is presented in Fig. 2, as well as its research hypotheses.

H₃: Consumer's attitude positively influences consumer's environmental awareness regarding the consumption of organic food; and

H₄: Consumer's environmental awareness positively influences organic food repurchase intention.



Fig. 2. Nest model and research hypotheses.

3 Research Method

The method employed is of a quantitative-descriptive nature, which is indicated when one wishes to describe the particularities of particular sets of variables (Malhotra et al. 2017; Blair and Blair 2015). The application of the research carried out employing a cross-sectional survey with a convenience sample (Hair Jr. et al. 2018).

In terms of data analysis, we used the structural equation modeling (SEM) technique. SEM is recommended for research with a higher degree of complexity, with different constructs and relationships of dependence, preserving the efficiency of statistics (Kline 2015; Byrne 2016), and through the estimation of the MLE (Maximum Likelihood Estimation) model, which allows the determination of various fit indexes (Hair Jr. et al. 2018; Kline 2015; Byrne 2016).

It is important to note that we chose a Nested Model (Fig. 2) following the propositions of Jarvis et al. (2003), which suggest comparing the respective model fit indexes (initial and nested) and the result of the hypothesis tests, where the nested model is an alternative model to the original (or initial) model, which may generate better results for its validation. The nested model is a model that is contained in the original theoretical model and tested with the same initial data set (Kline 2015), but that specifies at least one additional parameter to be estimated (Newson 2015; Petscher and Schatschneider 2019).

By defining the data collection instrument scales, when it comes to the operationalization of the constructs, a seven-point Likert scale was used, ranging from "1. I Totally Disagree" to "7: I Totally Agree", as it meets the essential requirement of continuous distribution necessary by structural equation modeling (Bearden et al. 2011).

For the Environmental Awareness construct, we used six variables in the scale (EA_1 to 6), adapted from De Toni et al. (2017), the Customer Attitude construct, we used three variables in the scale (CA_1 to 3), adapted from Paul et al. (2016), and the Repurchase Intention construct, we used five variable in the scale (RI_1 to 5), adapted from De Toni et al. (2017) based on Wu et al. (2015).

Next, we proceeded with the data collection instrument validation through face validity (Kinnear and Taylor 1996) and after we submitted the questionnaire to three experts in the area and a pre-test applied to twenty consumers of organic food. Data were then collected and used by the self-filling method (Malhotra et al. 2017).

It is important to note that, since such target population is not fully known, either in terms of sizing or profile, non-probabilistic (n) sampling was adopted for convenience, to facilitate data collection and the feasibility of access to possible respondents (Hair Jr. et al. 2018; Blair and Blair 2015). Thus, the sample was composed of consumers who have access to organic food consumption, residents of Serra Gaúcha - Brazil and, the collection was carried out between June and September 2018.

3.1 Data Preparation Procedures

The preparation and analysis of the raw data began with the analysis of missings (lost data) and outliers (atypical data), purifying the database so that the data acquire a more suitable format for the application of multivariate analysis (Hair Jr. et al. 2018).

We performed two categories of raw data analysis, following the assumptions for the application of multivariate techniques: (i) the identification of missings, which include lost data or missing values and outliers, related to atypical observations; and (ii) the analysis of the assumptions inherent to multivariate data analysis, which includes the verification of normality, homoscedasticity, linearity, and multicollinearity of the data (Hair Jr. et al. 2018; Malhotra et al. 2017; Kline 2015).

Following Byrne's (2016) indications, we only included listwise deletion questionnaires. Because the number of missings was less than 10% and not random, no questionnaire was ignored (Hair Jr. et al. 2018). After the analysis of the missings, we performed the analysis of outliers through two perspectives: (i) univariate analysis combinations, through Z-scores, and six questionnaires were eliminated from the sample because they had indexes higher than 3. In the case of Mahalanobis Distance (D^2) calculation, we considered conservative reference levels for D^2/df (0.005 or 0.001), i.e., values of 3 or 4 (Malhotra et al. 2017), which can assess the position of each observation on a set of variables and, because it is a sample with more than 200 valid cases, two questionnaires presenting values higher than 3 were eliminated. Thus, the final sample totaled 249 valid cases.

According to Malhotra et al. (2017), the last step in data preparation should be the multivariate analysis of statistical tests. We performed the normality tests through the data skewness test and the kurtosis test, the homoscedasticity by the Levene test, the linearity test with Pearson's Correlation Coefficients, and multicollinearity test with the Tolerance Value test and the Variance Inflation Factor (VIF), which presented acceptable levels for all variables (Warner 2013).

4 Results Analysis

4.1 Data Preparation Procedures

We obtained the final sample characterization (n = 249) through the information collection on gender, schooling, the types of organic food consumed, and the place of purchasing organic food. As for the gender of the respondents, the majority is female, corresponding to 59.04%, and 40.96% is male. The analysis of the respondents' schooling shows that the highest concentration of consumers had or has access to higher education, where they obtained incomplete higher education (36.93%), complete higher education (19.50%), but also postgraduate education in progress (9.96%), and postgraduate education completed (29.05%) representing 95.44% of respondents.

Regarding the types of food consumed, we verified that the most consumed items are: fruits with 27.49%, vegetables with 18.11%, eggs with 17.33% and, seeds with 10.78%. We also observed that the majority of respondents buy organic food at producers' fairs (37.67%); in supermarkets (30.75%); in specialized organic food stores (17.17%); in mini-markets and grocery stores (8.03%); and 6.37% in other establishments, sometimes direct from the rural producer.

Next, the convergent validity of the constructs was calculated using Confirmatory Factor Analysis (CFA), considering as parameters values above 0.5 (Kline 2015; Byrne 2016). In this study, we found both the composite reliability with indexes higher than 0.90 and the extracted variance, with indexes higher than 0.70 and therefore met the specifications in the literature (Malhotra et al. 2017), as shown in Table 1.

Constructs	Cronbach's alpha	Composite reliability	Extracted variance
Environmental awareness	0.854	0.918	0.789
Consumer attitude	0.876	0.945	0.836
Repurchase intention	0.881	0.951	0.741

Table 1. Cronbach's Alpha, composite reliability and extracted variance.

The next step in the data analysis was to check the discriminant validity using the method proposed by Fornell and Larcker (1981), by which the variances for each of the constructs are extracted and compared to the shared variances, obtained by calculating the correlations between the squared constructs (Malhotra et al. 2017). The results presented adequate discriminant validity between the constructs, as shown in Table 2.

Constructs	Environmental awareness	Consumer attitude	Repurchase intention
Environmental awareness	0.789		
Consumer attitude	0.424	0.836	
Repurchase intention	0.683	0.715	0.741

Table 2. Discriminant validity.

4.2 Theoretical and Nested Model Validation

The validation of the theoretical model was performed through the analysis of the model fit indexes. In the present study, as shown in Table 4, we chose to use absolute fit measures (GFI and RMSEA); incremental fit measures (AGFI, TLI, and NFI); and a parsimonious fit measure (CFI), to verify the quality of the model fit (Kline 2015).

Observing the fit indexes, we found satisfactory results for the GFI (0.917), IFI (0.931), TLI (0.957), and CFI (0.957) of the Initial Theoretical Model (Fig. 1). The RMSEA (0.078) is also adequate for the parameters recommended in the literature, as the values between 0.05 and 0.08 are acceptable (Byrne 2016). The AGFI measure (0.862) presented value in the boundary zone because it is higher than 0.80 but lower than 0.90, as recommended (Kline 2015), according to Table 3. It is noteworthy that, according to Bagozzi and Yi (2012), GFI and AGFI, in many cases, may result in values below 0.90, showing a lower performance than other measures. In the case of the nested model, all measures presented themselves in the boundary zone of the values indicated in the literature.

Model fit indexes	Values			
	Initial theoretical model	Nested model		
GFI	0.917	0.840		
AGFI	0.862	0.734		
NFI	0.931	0.873		
IFI	0.957	0.898		
TLI	0.938	0.850		
CFI	0.957	0.896		
RMSEA	0.078	0.120		

 Table 3.
 Theoretical and nested model fit indexes.

The next step to validate the model was the hypothesis test, which contemplates the structural paths, non-standardized coefficients, standardized errors, t-values, and probabilities, which is presented, respectively, in Tables 4 and 5.

Table 4. Hypothesis test of the initial theoretical model.

Ну	Structural path	Non-standardized coefficients (b)	Errors	Standardized coefficients (β)	t-values	р	Result
H_1	$EA \rightarrow CA$	0.854	0.136	0.586	6.276	0.000	Supported
H ₂	$CA \rightarrow RI$	0.926	0.095	0.929	9.748	0.000	Supported

Note: Significance level at 0.05.

Ну	Structural path	Non-standardized coefficients (b)	Errors	Standardized coefficients (β)	t-values	р	Result
H_3	$CA \rightarrow EA$	0.522	0.077	0.863	6.761	0.000	Supported
H_4	$EA \rightarrow RI$	1.597	0.230	0.933	6.950	0.000	Supported

Note: Significance level at 0.05.

As shown in Tables 4 and 5, the hypotheses formulated in the Theoretical Model were statistically supported, being H_1 (consumer's environmental awareness positively influences consumer attitude towards organic food consumption, $\beta = 0.586$, p < 0.001) and H_2 (consumer's attitude positively influences organic food repurchase intention, $\beta = 0.929$, p < 0.001), confirming the indications of Lee and Yun (2015) and Wu

et al. Similarly, the assumptions proposed in the Nested Model H_3 (consumer's attitude positively influences consumer's environmental awareness regarding the consumption of organic food, $\beta = 0.863$, p < 0.001) and H_4 (consumer's environmental awareness positively influences organic food repurchase intention, $\beta = 0.933$, p < 0.001) as pointed out by Suki and Suki (2015) and Paul and Rana (2012).

Present the structural models formed by latent variables (constructs), observable variables (indicators), and measurement errors, inserted for each of the constructs, both of the Initial Theoretical Model and the Nested Model, as well as their respective hypothesized relationships.

By checking the strength of the relationships tested, we observed in the path diagrams, in the Initial Theoretical Model, the coefficient of the path EA \rightarrow CA is 0.85 and of CA \rightarrow RI it is 0.93. In the Nested Model, the coefficient of CA \rightarrow EA is 0.52, and of EA \rightarrow RI, it is 1.60.

When analyzing the results, we found that the research hypotheses of both the Initial Theoretical Model and the Nested Model were statistically supported; however, the Initial Theoretical Model presented superior model fit indexes. To expand the validation of the models, another way to verify the explanatory power of the model is through the coefficients of determination (\mathbb{R}^2) (Malhotra et al. 2017). Table 6 presents the \mathbb{R}^2 of the Initial Theoretical Model and the Nested Model.

Constructs	Coefficients of determination	(R ²)
	Initial theoretical model	Nested model
Environmental awareness	0.341	0.699
Consumer attitude	0.344	0.745
Repurchase intention	0.870	0.863

Table 6. Coefficients of determination (R^2) .

The Initial Theoretical Model presented the following coefficient of determination (\mathbb{R}^2): 0.870, that is, 87.0% of the variance of the intention to repurchase organic food by consumers (dependent variable) can be explained by its independent variables, in this case, environmental awareness and consumer attitude. This result represents a reliable explanatory power of the model (Malhotra et al. 2017). Regarding the Nested Model, the coefficient of determination presented an $\mathbb{R}^2 = 0.863$, that is, 86.30% of the variance of the intention to repurchase organic food by consumers (dependent variable), which is explained by its independent variables, in this case, the consumer attitude and environmental awareness. Therefore, it is possible to conclude that the Initial Theoretical Model, taking into account the fit indexes of the model (Table 4) and its \mathbb{R}^2 , presents a better fit and a superior explanatory power in comparison to the Nested Model.

5 Discussion and Conclusion

The interest in this research field was motivated by the opportunity to generate evidence on consumer behavior concerning the consumption and repurchase of organic, ecologically correct food, in order to test determinants of consumers' repurchase intention (Paul and Rana 2012; Ari and Yilmaz 2016). This objective is based on future research indications from the primary studies in the area, and which highlight the need for new discussions in the literature, when dealing with a perspective on environmentally responsible healthy consumption (Anninou and Foxal 2017).

When reflecting on the testing of the Nested Model, the confirmation of the relationship of Environmental Awareness as an antecedent of Consumer Attitude stands out as a theoretical contribution. This relationship was also presented and confirmed in the model proposed and tested by Wang et al. (2018) and Paul and Rana (2012). The highlight of this contribution is the fact that the Initial Theoretical Model presented higher model fit indexes, as well as the coefficient of determination (\mathbb{R}^2) (Table 4). This result confirms the results of several studies in which environmental awareness is evidenced as an antecedent of consumer attitude, as pointed out by the studies of Suki and Suki (2015) and Zhang et al. (2019), besides these two constructs are configured as determinants of consumers intention to repurchase organic food.

An essential contribution in this study is the testing of alternative models, an initial theoretical model, and a nested model, a procedure recommended to verify the relationship between two models that intend to show which model, comparatively, has the best explanatory effect (Huang 2017). Because of this, the dependent variable, the Repurchase Intention, in the Initial Theoretical Model presented a coefficient of determination ($R^2 = 0.870$) with strong explanatory power, slightly higher than that of the Nested Model ($R^2 = 0.863$). This result, in addition to the model fit indexes and previous evidence found in the literature, sustains that the consumers' preference for repurchasing organic food is a behavioral effect. This is linked to consumers' personality traits, their environmental awareness and their attitudes towards organic food, which suggest that values and environmental concern are determinants of environmentally healthy consumption, due to their involvement with conservation practices and concern for the environment and society, in addition to their concern for better well-being and quality of life (De Toni et al. 2017; Farias et al. 2019).

Even if the nested Model's fit measures did not generate a result superior to the Theoretical Model (Table 3), all the hypotheses that emerged from this model have been confirmed. These results, very close to the Theoretical Model, reinforcing the relationship of environmental awareness in the consumer's attitude as antecedents of the repurchase intention, in a way, help to partially validate the proposed Theoretical Model, as well as the justifying the nested model, improving its parsimony and, as a result, the confirmation of the hypotheses.

Specifically, concerning organic food, it is worth mentioning that these products were cultivated, processed and commercialized according to organic standards, free of artificial inputs, such as chemical fertilizers, pesticides, veterinary drugs, hormones, antibiotics, and genetically modified organisms, produced through natural processes, through sustainable energy, taking into account soil protection. In this sense, they can be included in consumers' purchasing habits due to the benefits they bring to human health compared to conventional or industrialized products (De Toni et al. 2017).

Taking into account the results evidenced in this research, it becomes clear the need for business strategies and government actions to strengthen the consumption of organic food through public policies that mobilize the consumption of these products even in schools and other public institutions.

As managerial implications, we point that there is room in the market for company managers (producers, manufacturers, distributors, and retailers) to disseminate a higher volume of information (differences, benefits, advantages) of organic food compared to industrialized food, adopting more effective communication strategies to reinforce consumers' environmental awareness, not only related to the consumption of organic food but also an awareness focused on the preservation of the environment and respect for nature, life and other people. In this context, the creation of stamps of the origin or even designations of origin could add value to organic food, not only strengthening environmental awareness but also reinforcing a favorable attitude of consumers towards organic food, which may win not only a preference but perhaps repurchase or loyalty on the part of consumers.

As a limitation of the study, we point out that because it is a study applied to a nonprobabilistic sample, for convenience, the scope of the sample is restricted because it has been applied to a profile of usual buyers of this type of food, with specific characteristics (profile), giving up a market of potential future consumers, which may have personal characteristics or related to the consumption of different organic foods.

In future researches, we suggest, therefore, studies with greater representativeness that take into account the reason why consumers do not consume organic food, with a larger sample, with different profiles, even contemplating regionalities, nationalities, and diverse consumer cultures. There is also the possibility of applying the Initial Theoretical Model, which showed better results in a different context from the one investigated, relating the consumption of organic food or industrialized food, in addition to the possibility of researching the alternative of purchasing organic food online. On the other hand, instead of investigating, as a model-dependent variable, the repurchase intention, the retention or loyalty to certain types of organic products or the brands of manufacturers of this type of products could be tested.

References

- Afonso, T., Zano, M.A.G., Locatelli, R.L., Afonso, B.P.D.: Consciência ambiental, comportamento pró-ambiental e qualidade de gerenciamento de resíduos em serviços de saúde. J. Environ. Manag. Sustain. 5, 106–119 (2016)
- Akerlof, K.: When should environmental awareness be a policy goal? In: Loreto, V., et al. (eds.) Participatory Sensing, Opinions and Collective Awareness. UCS, pp. 305–336. Springer, Cham (2017). https://doi.org/10.1007/978-3-319-25658-0_15
- Anninou, I., Foxall, G.R.: Consumer decision-making for functional foods: insights from a qualitative study. J. Consum. Mark. 34(7), 1–49 (2017)
- Ari, E., Yılmaz, V.: Effects of environmental illiteracy and environmental awareness among middle school students on environmental behavior. Environ. Dev. Sustain. 19(5), 1779–1793 (2016). https://doi.org/10.1007/s10668-016-9826-3
- Bagozzi, R.P., Yi, Y.: pecification, evaluation, and interpretation of structural equation models. J. Acad. Mark. Sci. **40**(1), 8–34 (2012)
- Barber, N., Kuo, P., Bishop, M., Goodman, R., Jr.: Measuring psychographics to assess purchase intention and willingness to pay. J. Consum. Mark. 29(4), 280–292 (2012)

- Bearden, W.O., Netemeyer, R.G., Haws, K.L.: Handbook of Marketing Scales: Multi-item Measures for Marketing and Consumer Behavior Research, 3rd edn. Sage Publications, Thousand Oaks (2011)
- Bian, Q., Forsythe, S.: Purchase intention for luxury brands: a cross cultural comparison. J. Bus. Res. 65(10), 1443–1451 (2012)
- Blair, E., Blair, J.: Applied Survey Sampling. Sage Publications, Thousand Oaks (2015)
- Bravo, C.P., Cordts, A., Schulze, B., Spiller, A.: Assessing determinants of organic food consumption using data from the German national nutrition survey II. J. Food Qual. Prefer. **28**(1), 60–70 (2013)
- Byrne, B.M.: Structural Equation Modeling with AMOS: Basic Concepts Applications, and Programming, 3rd edn. Routledge, New York (2016)
- Darolt, M.R., Lamine, C., Brandenburg, A., Alencar, M.C.F., Abreu, L.S.: Redes alimentares alternativas e novas relações produção-consumo na França e no Brasil. Rev. Amb. Soc. **19**(2), 1–22 (2016)
- De Toni, D., Eberle, L., Larentis, F., Milan, G.S.: Antecedents of perceived value and repurchase intention of organic food. J. Food Prod. Mark. **5**(1), 1–22 (2017)
- Du, Y., Wu, X., Brombal, D., Moriggi, A., Sharpley, A., Pang, S.: Changes in environmental awareness and its connection to local environmental management in water conservation zones the case of Beijing, China. Sustainability **10**(6), 1–24 (2018)
- Elen, M., D'Heer, E., Geuens, M., Vermeir, I.: The influence of mood on attitude-behavior consistency. J. Bus. Res. 66(7), 917–923 (2013)
- Farias, F., Eberle, L., Milan, G.S., De Toni, D., Eckert, A.: Determinants of organic food repurchase intention from the perspective of Brazilian consumers. J. Food Prod. Mark. 25(9), 921–943 (2019)
- Fornell, C., Larcker, D.: Evaluating structural equation models with unobserved variables and measurement error. J. Mark. Res. 18(1), 39–50 (1981)
- Hair, J.F., Jr., Black, W.C., Anderson, R.E., Black, W.C.: Multivariate Data Analysis: A Global Perspective, 8th edn. Cengage, Boston (2018)
- Han, G., Pu, X., Fan, B.: Sustainable governance of organic food production when market forecast is imprecise. Sustainability **9**(6), 1–20 (2017)
- He, X., Liu, Y.: The public environmental awareness and the air pollution effect in Chinese stock market. J. Clean. Prod. **185**, 446–454 (2018)
- Huang, P.: Asymptotics of AIC, BIC and RMSEA for model selection in structural equation modeling. Psychometrika 82, 407–426 (2017)
- Jarvis, C.B., MacKenzie, S.B., Podsakoff, P.M.A.: Critical review of construct indicators and measurement model misspecification in marketing and consumer research. J. Cons. Res. **30**(2), 199–218 (2003)
- Journeault, M.: The influence of the eco-control package on environmental and economic performance: a natural resource-based approach. J. Manag. Account. Res. **28**(2), 149–178 (2016)
- Keiningham, T.L., Frennea, C.M., Aksoy, L., Buoye, A., Mittal, V.: A five component customer commitment model: implications for repurchase intentions in goods and services industries. J. Serv. Res. 18(4), 433–450 (2015)
- Kinear, T.C., Taylor, J.R.: Marketing Research: An Applied Approach, 5th edn. McGraw-Hill, New York (1996)
- Kline, R.B.: Principles and Practice of Structural Equation Modeling, 4th edn. The Guilford Press, New York (2015)
- Kriwy, P., Mecking, R.A.: Health and environmental consciousness, costs of behaviour and the purchase of organic food. Int. J. Consum. Stud. **36**(1), 30–37 (2012)

- Lee, H.J., Yun, Z.S.: Consumers' perceptions of organic food atributes and cognitive and affective attitudes as determinants of their purchase intentions toward organic food. Food Qual. Prefer. 39(32), 259–267 (2015)
- Maichum, K., Parichatnon, N.S., Peng, K.C.: Application of the extended theory of planned behavior model to investigate purchase intention of green products among thai consumers. Sustainability **8**(10), 1–20 (2016)
- Mainardes, E.W., Araujo, D.V.B., Lasso, S., Andrade, D.M.: Influences on the intention to buy organic food in an emerging market. Mark. Intell. Plan. **35**(7), 858–876 (2017)
- Malhotra, N.K., Nunan, D., Birks, D.: Marketing Research: Applied Approach, 5th edn. Pearson, New York (2017)
- Mørk, T., Bech-Larsen, T., Grunert, K.G., Tsalis, G.: Determinants of citizen acceptance of environmental policy regulating consumption in public settings: organic food in public institutions. J. Clean. Prod. 148, 407–414 (2017)
- Newsom, J.T.: Longitudinal Structural Equation Modeling: A Comprehensive Introduction. Routledge, New York (2015)
- Nguyen, H.V., Nguyen, C.H.: Green consumption: closing the intention behavior gap. Sustain. Dev. **27**(1), 118–129 (2019)
- Nuttavuthisit, K., Thogersen, J.: The importance of consumer trust for the emergence of a market for green products: the case of organic food. J. Bus. Ethics **140**(2), 323–337 (2017)
- Paul, J., Modi, A., Patel, J.: Predicting green product consumption using theory of planned behavior and reasoned action. J. Retail. Consum. Serv. 29(13), 123–134 (2016)
- Petscher, Y., Schatschneider, C.: Using n-level structural equation models for causal modeling in fully nested, partially nested, and cross-classified reandomized controlled trials. Educ. Psychol. Measur. **79**(6), 1075–1102 (2019)
- Rustam, A., Wang, Y., Zameer, H.: Environmental awareness. Firm sustainability exposure and green consumption behaviors. J. Clean. Prod. **268**, 122016 (2020)
- Soares, S., Amaral, J.S., Oliveira, M.B.P.P., Mafra, I.: Comprehensive review on the main honey authentication issues: production and origin. Comprehens. Rev. Food Sci. Food Saf. 16, 1072– 1100 (2017)
- Suh, B.W., Lumbers, A.E.M.: Developing a model of organic food choice behavior. Soc. Behav. Pers. **43**(2), 217–230 (2015)
- Suki, N.M., Suki, N.M.: does religion influence consumers' green food consumption? Some insights from Malaysia. J. Consum. Mark. 32(7), 551–563 (2015)
- Uehara, E.K., Nakatani, J., Hirao, M.: Analysis of factors influencing consumers' proenvironmental awareness and trust in environmental information on product choice. J. Clean. Prod. 117, 10–18 (2016)
- Xu, X., Wang, S., Yu, Y.: Consumer's intentions to purchase green furniture: do health consciousness and environmental awareness matter? Sci. Total Environ. 704, 135275 (2020)
- Wang, E.S.T., Yu, J.R.: Effect of product attribute beliefs of ready to drink coffe beverages on consumer perceived value and repurchase intention. Br. Food J. 118(12), 2963–2980 (2016)
- Wated, G., Sanchez, J.I.: Managerial tolerance of nepotism: the effects of individualismcollectivism in a Latin American context. J. Bus. Ethics 130(1), 45–57 (2015)
- Wu, J.H., Wu, C., Lee, C., Lee, H.: Green purchase intentions: an exploratory study of the Taiwanese eletric motorcycle market. J. Bus. Res. 68(4), 829–833 (2015)
- Yadav, R., Pathak, G.S.: Young consumers' intention towards buying green products in a developing nation: extending the theory of planned behavior. J. Clean. Prod. 135, 732–739 (2016)

- Yu, Y., Han, X., Hu, G.: Optimal production for manufacturers considering consumer environmental awareness and green subsidies. Int. J. Prod. Econ. 182, 397–408 (2016)
- Zhang, L., Zhou, H., Liu, Y., Lu, R.: Optimal environmental quality and price with consumer environmental awareness and retailer's fairness concerns in supply chain. J. Clean. Prod. 213, 1063–1079 (2019)