

# DETERMINANTS OF THE THEORY OF PLANNED BEHAVIOR OF CONSUMER RELATED TO INTENTION TO PURCHASE OF ORGANIC VEGETABLES

## *DETERMINANTES DA TEORIA DO COMPORTAMENTO PLANEJADO DO CONSUMIDOR RELACIONADOS À INTENÇÃO DE COMPRA DE HORTALIÇAS ORGÂNICAS*

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**ABSTRACT:** The Brazilian consumers have expanded their purchases of organic products. However, little is known about these consumers' purchase behavior. Considering the Theory of Planned Behavior, was aimed at this study to evaluate the positive influence of attitude, subjective norms and perceived behavior control in the decision to buy organic vegetables and to evaluate the causal relationships of these variables in the intention to buy vegetables in function of the sociodemographic characteristics of the consumer. During the purchase process, 472 people were interviewed using a questionnaire. The structural equation modeling with the partial least squares method was used to test the relationships proposed in the specific objectives, among the latent variables, attitude, subjective norm, perceived control and uncertainty, predictive of purchase intention. The results indicate that the latent predictive variables influence positively the intention to purchase, unless the perceived uncertainty that the higher this is, the less will be the intention to purchase. Regarding the socioeconomic variables, only the groups targeted in the level of schooling and family income showed significant differences for the relationship between the subjective norms and purchase intention, and for the group age range, the relation between perceived uncertainty and purchase intention.

**KEYWORDS:** Organic products. Organic market. Purchase intention. Individual perception.

### INTRODUCTION

The food supply crises stemming from problems with animal health, the concerns with the use of pesticides in agriculture, as well as antibiotics and hormones in animal nutrition, resulted in the reduction of the confidence of consumers in relation to the quality of the food from conventional production (CHEN, 2009). In addition, at the same time, the patterns of food consumption have been changing rapidly because of issues regarding the development and sustainability issues with respect to the nutritional aspect and also issues related to health (MAGNUSSON et al., 2003; HOPPE et al. 2012; LEE et al., 2014). Considering these factors, the demand for organic production has increased (CHEN, 2009), once that foods grown in accordance with the principles of organic farming integrate the interests of consumer health and the food quality (HOPPE et al., 2012).

The global market for organic food represents a multibillion-dollar industry that has grown steadily over the last few decades (LEE;

GOUDEAU, 2014). Given this scenario, the organic products suppliers and policy makers began to take an increasing interest in the attitudes of consumers in relation to food/organic agriculture, as the intention of paying more for these products and, accordingly, the purchase behavior (TUNG et al., 2012). Thus, studies have been carried out in the area of organic products consumer's behavior (SHEPHERD et al., 2005; CHEN, 2009; HOPPE et al., 2012; BOYS et al., 2014). However, few are those who emphasize the motivations, beliefs and values of this consumer, especially in Brazil. In this sense, the constructs proposed by the Theory of Planned Behavior (TPB), proposed by AJZEN in 1985, may help to emphasize this approach (RODRIGUES et al., 2009).

TPB suggests that human behavior is based on three points: (i) in the behavioral beliefs; (ii) in the normative beliefs, and (iii) in the beliefs about control (AJZEN, 1985). The behavioral beliefs deal with the possible consequences of human behavior. Whereas the normative beliefs relate to expectations of perceived behavior concerning other people, such

as family and friends (social pressure). These normative beliefs, combined with the personal motivation to comply with different rules, determine the subjective norm behind the purchase. Finally, beliefs about the control refer to factors that may facilitate or impede the performance of the behavior. Thus, it is assumed that the power exerted by the attitude, subjective norm and perceived control determines the behavior intention (AZJEN, 2008). In turn, the intention of behavior will be stronger the higher perceived control and when the attitudes and subjective norms are favorable (HOPPE et al., 2012).

Considering the Theory of Planned Behavior, the main objective of this study was to evaluate the positive influence of attitude, subjective norms and perceived behavioral control in the purchasing decision of organic vegetables. Its specific objectives were: a) check the existence of positive relationship of attitude, subjective norms and perceived behavioral control on purchase intention of organic vegetables; and (b) evaluate the causal relationships of attitude, subjective norms and perceived behavioral control on purchase intention of organic vegetables in function of the consumer's sociodemographic characteristics.

## MATERIAL AND METHODS

For the implementation of this study, it was opted for a quantitative approach to highlight the context of experiences and the experiences of the organic vegetables purchasers. It was chosen, as to the nature, for an applied research with exploratory aim, adopting the procedures of survey of theoretical references already published on the subject and primary data collection from a group of interest, representative of a population of Campo Grande dwellers' buyers.

For data collection, a questionnaire was used composed of two sessions: A session regarding the relationship of consumption and the process of buying organic vegetables and another session regarding the interviewee's socioeconomic profile. Where as the principles of relationship of latent variables of the Theory of Planned Behavior (AJZEN, 2005), it was defined that the purchase behavior of organic vegetables would be those comparators of organic or conventional vegetables, in Campo Grande, Mato Grosso do Sul, Brazil, interviewed in the main points of sales (supermarkets, markets, fairs, grocery stores and others) distributed in seven administrative regions of the city, in the period from December 19th 2016 to January 27th 2017. The respondent was assured his

or her non-identification with the confidentiality of their responses, and that data would be processed grouped, not individually, to the other respondents, with the sole purpose of scientific research. The interviews were carried out face to face, by trained and accredited people, those buyers who were willing to provide information about the purchase process and behavior in relation to the process of buying organic vegetables. The questionnaire was examined and approved by the Ethics Committee for Human Beings (Protocol n. 1.830.613, of November 22, 2016).

The socioeconomic and demographic characteristics of the sample are presented in Table 1. The total sample consists of 472 respondents. Considering the economically active population of Campo Grande, indicated as 435,728 people (IBGE, 2016), for a significance level of 95%, it is determined the margin of error of 4.51%, acceptable to the ratings in applied social sciences (AGRESTI; FINLAY, 2012). It is added to this, the recommendation of Hair et al. (2009), that for the factorial analysis at least five comments per item of each latent variable should be provided. As the questionnaire has 17 items, the minimum number of cases would be of 85 respondents. Another recommendation, now for the structural equation modeling (HAIR et al., 2014), indicates that the sample must be greater than or equal to ten times the number of formative indicators used in the measurement of latent variables, or constructs. In this case, the minimum sample size would be 170 respondents. The sample of 472 respondents surpasses the two recommended assumptions.

The measures of latent variables, that is to attitudes (AT), subjective norms (SN), perceived behavioral control (PB) and purchase intention (PI), were those proposed by Ajzen (2002) and Hoppe et al. (2012). For the session regarding the relationship to consumption, items corresponding to the observed variables, it was used a Likert scale of concordance, seven points ranging from 1 = strongly disagree to 7=totally agree. The Likert scale of seven points used in the items has demonstrated more accurate and easy to be used, reflecting better the real assessment of the respondent (FINSTAD, 2010). For the session of the purchase process, scales of bipolar adjectives of seven points were used, as suggested by Ajzen (2002) and Hoppe et al. (2012).

The unidimensionality of latent variables, attitude, subjective norms, perceived behavioral control and intention to purchase, was analyzed using exploratory factor analysis, following the recommendations of Hair et al. (2009), using the

varimax rotation method, the software SPSS v.24. The verification of proper adjustment of the model, considering the number of items of the latent variables and the sample size, was the one who answered the cutoff values for: Kaiser-Meyer-Olkin test (KMO) > 0.50; Bartlett's sphericity with < 0.05 significance; factorial load > 0.40, Cronbach's alpha coefficient greater than 0.60; measurement of adequacy of the sample, MSA > 0.50; commonalities > 0.50, explained variance > 50%.

With the factors obtained, the analysis of confirmation was carried out of the structural model adjusted, using the techniques of structural equation modeling with the method of partial least squares, using the software SmartPLS 2.0 M3 (HAIR et al., 2014; RINGLE et al., 2014). The structural model set was tested using correlations ( $r$ ) and linear regression. The null hypotheses are for the linear correlations  $H_0: r=0$  and for the coefficients of  $H_0$  path:  $\Gamma=0$ . If  $p<0.05$ , the null hypothesis is rejected. The acceptable values to adjust the model were those recommended by Hair et al. (2009), Hair et al. (2014) and Ringle et al. (2014).

For the analysis as indicated in the second specific objective, related to the examination of the behavior of consumers when segmented into groups characteristic of the socioeconomic profile, the technique of Structural Equation Modeling was used in the evaluation of heterogeneity among two or more groups. It was verified the possible existence of significant differences in the coefficients of paths of latent variables of the structural model adjusted. This technique allowed to compare the different types of groups as to gender (male and female), age range (up to 35 years or over 35 years), schooling level (middle or upper), family income (low, medium or high), if there is in the family group children below 15 years old (no or yes) and elderly people above 65 years (no or yes). The classes indicated for the range of age, level of education and family income were subdivided, of the original scale, by the respective median statistics. Thus, the level of education was laid in two levels: medium,

adding to the respondents with elementary school and high school, and upper, adding to the respondents with higher education and graduate degrees.

## RESULTS AND DISCUSSION

Table 1 presents the summary of the profile of respondents, depending on the gender. The amount of men and women interviewed is manifested next to data from IBGE (2016) for the city of Campo Grande, MS (approximately 49% of men and 51% women). The sample of men was formed of 66% married, 56.4% with income up to R\$ 6,220.00 and 70.1% with higher level of education. The women, 54.1% were married, 75.7% with income up to R\$ 6,220.00 and 58.9% with higher level of education. It is still reported, on the profile of the respondents, 51.1% of people who do not have children below 15 years and also that 81.6% did not have elderly people over 65 years living in their homes.

The proposed structural model tested the validity of their items by means of exploratory factor analysis with varimax rotation and the analysis of the reliability of the scales by the criterion of the Cronbach's alpha coefficient. The results converged after six interactions, offering a solution for five factors, named and listed in Table 2. The variables attitude (AT), subjective norms (SN), purchase intention (PI) and perceived behavioral control (PC) are in agreement with the Ajzen model (2005). The model suggested the perceived uncertainty (PU) variable in accordance with the proposal of Hoppe et al. (2012). The indicators of adjustment of the exploratory factorial analysis showed higher values than the reference values proposed by Hair et al. (2009). The values of  $KMO=0.803$ , Bartlett's sphericity = 2845,639 and  $sig<0.001$  and  $MSA > 0.610$  provide the condition to accept the measurement model among the items and the respective factors, which were identified as latent variables.

**Table 1.** Profile of the respondents on the basis of gender in Campo Grande, MS, in 2017

		The respondent's gender	
		Male (n=241)	Female (n=231)
		% of the column	% of the column
Marital Status	Married	66.0	54.1
	Single	29.9	31.6
	Widower	0.0	3.5
	Divorced/Separated	4.1	6.9

	Another	0.0	3.9
Sum of all monthly incomes (R\$/month) of people that live in your home	up to R\$ 1,244,00	8.6	15.1
	From R\$ 1,244.01 to R\$ 2,488.00	23.7	35.5
	From R\$ 2,488.01 to R\$ 6,220.00	24.1	25.1
	From R\$ 6,220.01 to R\$ 12,440.00	29.9	10.4
	More than R\$ 12,440.01	13.7	13.9
The respondent's educational level	No instruction	0.4	1.7
	Elementary School	9.6	10.8
	High School	19.9	28.6
	Higher Education	41.5	40.7
	Graduate Level	28.6	18.2

**Table 2.** Exploratory factorial analysis with varimax rotation of the items of the structural model, with their commonalities, factor loadings and indicators of adjustment.

Items	Factors and factor loadings					
	Commonalities	Attitude	Subjective Norms	Perceived Uncertainty	Purchase intention	Perceived control
Q2 I feel I don't know much about organic foods.	0.73			0.85		
Q3 compared to most people, I know very little about organic foods.	0.69			0.81		
Q4 Regarding organic foods, I do not have a lot of knowledge.	0.77			0.87		
Q5 Organic vegetables are generally available in the places where I usually buy food.	0.74					0.86
Q6 If I wanted to, I could easily buy organic vegetables instead of conventional.	0.72					0.82
Q7 Buying organic vegetables instead of conventional would make me feel that I am doing something "politically correct".	0.64		0.78			
Q8 Buying organic vegetables instead of conventional would make me feel a better person.	0.67		0.75			
Q9 Buying organic vegetables instead of conventional would make me feel as if I were contributing to something better.	0.77		0.84			
Q10 I will buy organic vegetables instead of conventional shortly.	0.55		0.53			
Q11 I A large part of the people who I respect and admire buy organic vegetables instead of conventional.	0.41		0.49			
Q12 For me, buying organic vegetables instead of conventional would be difficult/Easy	0.52				0.59	
Q13 Buying organic vegetables instead of conventional would make me feel Bad/well.	0.66	0.73				
Q14 Buying organic vegetables instead of conventional would make me feel Unsatisfied/satisfied.	0.72	0.82				
Q15 Buying organic vegetables instead of conventional would be harmful/benefic	0.67	0.78				
Q16 Buying organic vegetables instead of conventional would be Stupid/Wise	0.73	0.82				
Q17 I intend to buy organic vegetables instead of conventional shortly No/Yes	0.59				0.73	
Q18 Of the 10 last times that you bought vegetables, how many times were they organic?	0.61				0.75	
Alpha of Cronbach	-	0.84	0.80	0.81	0.60	0.67
Cumulative explained variance (%)		16.48	31.88	45.07	56.13	65.84

The analysis of the structural model set was obtained by estimating the discriminant validity and quality of the model. The discriminant validity is the estimation of independence among the latent variables using the square root of the average variance extracted (AVE). The values in bold on the diagonal of Table 3 provide evidence of discriminant validity, since they are larger than the other values of Pearson's linear correlation among the latent variables indicated outside the diagonal. The convergent validity of the model is indicated by means of the AVE for each latent variable, which is superior to the cutoff value of 0.50, explaining that

the items are positively correlated with their respective latent variables, assuming that the model provides a satisfactory outcome. The internal consistency of the model, as indicated by the values of the composite reliability (CR) and Cronbach's alpha, presents higher measures than the cutoff values (Table 3), appropriate indicative to infer that the sample is trusted to represent the model. The coefficient of determination ( $R^2$ ) indicates that 27.8% of the variance of the purchase intention is explained by four formative latent variables, considering a moderate effect (Table 3).

**Table 3.** Discriminant validity between the latent variables and the quality of the adjustment of the structural model adjusted

Latent variable	Discriminant validity					Quality of the model			
	AT	SN	PU	PI	PC	AVE	CR	R <sup>2</sup>	Alpha
Attitude (AT)	<b>0.825</b>					0.680	0.895		0.843
Subjective Norms (NS)	0.519	<b>0.735</b>				0.540	0.854		0.795
Perceived uncertainty (PU)	-0.066	0.024	<b>0.848</b>			0.719	0.885		0.809
Purchase Intention (PI)	0.297	0.392	-0.217	<b>0.750</b>		0.563	0.794	0.278	0.611
Perceived Control (PC)	-0.036	0.171	-0.004	0.305	<b>0.866</b>	0.751	0.857		0.672

Note: The diagonal values in bold correspond to the square root of the average variance extracted (AVE).

The values and significances of path coefficients are shown in Table 4. All path coefficients are significant at the level of  $p < 0.001$ , indicating consistency of results. Analyzing the results in Table 4, it is observed that the latent variable subjective norms (SN) has a greater contribution to the PI. This can be explained considering that the intention of buying organic vegetables is influenced by normative beliefs background, due to the influence of behavior of groups of people, which exert social pressure to the buyer; by personal motivation to comply with the inherent rules; and their apparent knowledge

(AJZEN, 2005) to organic production, indicating a form of contribution to the preservation of the environment (HOPPE et al., 2012; GALLO et al., 2014). It should be emphasized, even on the NS, this has a strong correlation with the attitude in relation to the behavior (AT) and PI (see Table 3), which were also found by Sheppard et al. (1988) and Gallo et al. (2014), whose explanation would be that people who buy organic vegetables do it for affection, love or attraction and conviction of benefits to their health or protection of the environment (SHEPHERD et al., 2005; ARVOLA et al., 2008; GABOKO and JERE, 2016).

**Table 4.** Path coefficients, standard deviations and statistical t of the structural model adjusted

	Path Coefficient	Standard Deviation	Statistics t
Attitude (AT) → Purchase intent (PI)	0.151	0.046	3.313***
Subjective norms (SN) → Purchase intent (PI)	0.273	0.050	5.496***
Perceived uncertainty (PU) → Purchase intent (PI)	-0.212	0.040	5.268***
Perceived control (PC) → Purchase intent (PI)	0.263	0.046	5.713***

Legend: Two-tailed significance level: \*\*\*  $p < 0.001$ .

The latent variable PC also has a positive and significant relationship with the PU (see Tables 3 and 4), which can be explained as the realization of purchase, depending on the resources and opportunities, as measured by the ease and availability, or not, of organic vegetables (AJZEN, 2005). Thus, the latent variable PC has important marketing components, as reported by Gallo et al. (2014), as the place of sale, information about the products, provision the higher price (LOPES et al., 2016), causing a greater control of the purchaser and, in consequence, making a reduction of barriers to purchase, such as accessibility, product diversification of products and availability of additional information about the advantages of consumption, the greater will be the PI. The relationship of the PU with the PI is negative and significant (Tables 3 and 4), i.e., with the increase of uncertainty, there is a reduction of the purchase intention. PU is a latent variable related to the knowledge of the buyer on organic vegetables. Upon reducing the obstacles identified for the purchase of organic vegetables, a new panorama of perception is generated of knowledge to the buyer, decreasing the PU and increasing the PI.

The first specific objective was analyzed, as described above, and it can be argued that the proposition of the model structure among the formative independent latent variables AT, SN and PC provide a positive causal relationship in the latent variable dependent on PI, while the PU contributes with a negative relationship. Nevertheless, Hoppe et al. (2012) argue that in a similar study in Porto Alegre, the PU is a latent variable not significant, describing that the lack of knowledge does not diminish the PI.

Table 5 presents the results of the path coefficients for the categorical multigroups which had some significant difference in the level of  $p < 0.05$ . The effects of the categories of gender, marital status, presence of children and elderly people in their family group showed no heterogeneity at the level of  $p < 0.05$  and their respective values of the coefficients of path are not presented. Thus, for these multigroups, the perceptions of AT, SN, PU and PU in the causal relationship with PI are no different when analyzed for each category.

When analyzed the groups forming the educational level, Table 5 indicates that there is a significant difference  $p < 0.05$  for the SN in relation

to PI. The buyers of organic vegetables with higher level of education consider that their SN ( $\Gamma = 0.378$ ,  $t=3.007$ ,  $p < 0.05$ ) is more prevalent in PI than for the group of Medium educational level ( $\Gamma = 0.177$ ), indicating that their personal beliefs and the influence of friends and family act positively on the purchase of organic vegetables. This can be strengthened by what was found by Moraes et al. (2015), reporting that people with higher level of education have more knowledge in relation to healthy eating habits and can buy organic products.

For the multigroup formed by family income (Table 5), this also presents significant difference of SN in relation to PI. The high-income group has a greater SN ( $\Gamma=0,416$ ), indicating that these rely more on their personal convictions and social pressure exerted by people of their coexistence for the PI. Whereas the group of low-middle income, SN ( $\Gamma=0,138$ ), with an indicative value less of a history of conviction, can be justified to assume that is more interested in marketing characteristics of organic vegetable: pricing, promotion, provision, among others. This assumption is supported by indications of Gallo et al. (2014), when describe that the influence of the surroundings is important about the intention to purchase cheaper products. Thus, many times, the price may be a buying decision, because the organic vegetables have a selling price higher than the conventional vegetables and there is a perception of willingness to pay a premium price due to being healthy (LOPES et al., 2016).

Another significant difference indicated by Table 5 is on the relationship between PU and PI, for the multigroup age range. The PU is greater for the age of age greater than 35 years ( $\Gamma= -0,289$ ), characterizing that for this mature group, the more negative the value of path coefficient, the less subjective the knowledge about organic vegetables, the lower its probability of purchase. For the group aged less than 35 years ( $\gamma=-0,153$ ), the antecedent subjective knowledge is not as representative as the previous group for the implementation of the PI of organic vegetables. It is presumed that for these youngsters, the act of buying organic vegetables involves less risk, no conditions to anticipate unpleasant certainty of purchase, or even that, under the aspect of value and expected utility, the subjective loss is not significant (PADEL; FOSTER, 2005; BRASIL et al., 2008; LEONIDOU et al., 2010; VACCARI et al., 2016).

**Table 5.** Multigroup moderation in the educational level, family income and age in the structural model adjusted

Path	Path Coefficient of the multigroups and value of t								
	Educational Level			Income range			Age range (years)		
	M (n=167)	S (n=305)	t	B (n=195)	A (n=277)	t	≤ 35 (n=253)	> 35 (n=305)	t
AT → PI	0.168	0.141	0.424	0.216	0.109	1.758	0.179	0.172	0.110
SN → PI	0.177	0.378	3.007**	0.138	0.416	4.433***	0.264	0.259	0.072
PU → PI	-0.247	-0.202	0.795	-0.238	-0.208	0.563	-0.153	-0.289	2.530**
PC → PI	0.286	0.241	0.716	0.253	0.263	0.168	0.242	0.300	0.901

Legend: M - Medium; S - Upper; B - low-average; - High; n - the number of the sample; t - t value test, two-tailed test for differences among groups; \*\*p<0.05; \*\*\*p<0.001.

The relationships indicated by the model tested reveal some academic and business implications. The business implications can be indicated by the importance revealed by consumer behavior in relation to their antecedents to the purchase of organic vegetables. When checking the subjective rules and the perceived uncertainty, which affect the intention to purchase, they show evidence of the importance of the point of sale. Some of the barriers to the sale of organic vegetables can be minimized with the greater supply and diversification of these, as well as increasing the points of supply and product information on organic and conventional conditions, giving the buyer more choice and comparison among them. Such managerial actions can be articulated by entrepreneurs providing support and strengthening of organic production, as well as the use of marketing tools in the establishment of the dissemination, promotion and price. These procedures may also act on the attitude of the buyer, increasing the frequency and the consumption of organic vegetables.

The academic implications arise from the limitations of the research and possibilities for future investigations. As this study was a cross-sectional procedure, the behavior and beliefs of buyers may be subject to interference at the moment. In this context, in order to enlarge the knowledge about the behavioral procedures of

buyers it is suggested the implementation of other longitudinal studies, in order to identify segments and profiles, relationship with the context that surrounds the local economy. Either, the data collection could be extended of the TPB in other cities in South Mato Grosso, providing more knowledge and comparison among the buying behaviors of organic vegetables. On the other hand, it is noted that the price variable is a decision that has an influence on the model, related to the Perceived control and the frequency of purchase. Also, the study could be expanded with the addition of other theories and variables related to the buying behavior.

## CONCLUSION

The proposed structural model based on TPB, was shown to be suitable for the context of buyers of organic vegetables. The formative latent variables of the AT, SN and PC have a positive contribution to the PI, while the PU contributes negatively to the IC. In relation to socioeconomic variables, which establish the purchaser's profile, only the groups targeted in the level of schooling and family income showed significant differences for the relationship between the SN and PI, and for the group age range, the relationship between PU and PI.

**RESUMO:** O consumidor brasileiro tem ampliado as suas compras de produtos orgânicos. No entanto, muito pouco se conhece sobre o comportamento de compra desses consumidores. Considerando a Teoria do Comportamento Planejado, o objetivo deste estudo foi o de avaliar a influência positiva da atitude, das normas subjetivas e do controle de comportamento percebido na decisão de compra de hortaliças orgânicas e avaliar os

relacionamentos causais destas variáveis na intenção de compra de hortaliças orgânicas em função das características sociodemográficas do consumidor. Foram entrevistados 472 pessoas, durante o processo de compra, por meio da aplicação de um questionário. A modelagem de equações estruturais com o método de mínimos quadrados parciais foi utilizada para testar as relações propostas nos objetivos entre as variáveis latentes atitude, norma subjetiva, controle e incerteza percebida, preditivas da intenção de compra. Os resultados indicaram que as variáveis latentes preditas influem positivamente à intenção de compra, salvo a incerteza percebida que quanto maior for esta, menor será a intenção de compra. Em relação às variáveis socioeconômicas, apenas os grupos segmentados do nível de escolaridade e faixa de renda familiar apresentaram diferenças significativas para o relacionamento entre a norma subjetiva e intenção de compra, e para o grupo faixa de idade, a relação entre incerteza percebida e intenção de compra.

**PALAVRAS-CHAVE:** Produtos orgânicos. Mercado orgânico. Intenção de compra. Percepção do indivíduo.

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