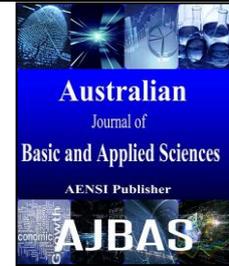




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### Green Product Consume: The Influence of Skepticism and the Environmental Concern

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#### ABSTRACT

**Background:** The green consumption can be defined as the consumption that includes, in addition to price and quality variables in the decision of consumption, the environmental variable. Thus, one of the actions taken by companies to change this scenario has been the investment in marketing and advertising actions, both at sale point as an institutional basis. It is important to understand whether among the strategies adopted by companies, which it can result in a concrete action in terms of consumption of green products in retail. We conducted a survey comprising 1,233 Brazilian consumers to observe their effect in the relationship between intention and declared purchase of green products and understand the consumer's willingness to turn his environmental concern and his confidence in the green product appeal in a practical action. The collected sample was sufficient to detect the desired effects of Structural Equation Modeling with Partial Least Squares Method (Partial Least Square - PLS) using the SmartPLS 2.0 M3 software. **Objective:** In order to analyze the influence of skepticism and environmental concerns in the perception of the individual to the purchase intent and declared purchase of green products at retail. **Results:** As a result, it was observed that the consumer takes more account of his purchase routine and his past experience than environmental concerns and influence of advertisements with green appeal. **Conclusion:** consumption of green products in the retail needs mechanisms aimed at the change of habit and the break of paradigms (consumer and retailer).

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#### INTRODUCTION

Environmental concern and the impact caused by increasing consumption led companies to be worried about the types of product offered to consumers. This position has given rise to the concept of green products, taken as not harmful to the environment and human health both in its content and in its packaging (Portilho, 2010). Such a move is due to the emergence of concern that hit the industry, retailers and consumers about the impact caused by consumerism of contemporary societies. This process can be seen as a consequence of the development of Western society, as many actors become aware of space for the important, interdisciplinary and of great relevance discussion to society and consumers (Vogel, 2006).

Still, the consumer has shown that the fact that a certain concern for the environment does not necessarily turn into consumption of green products,

as has been shown by some research linking environmental concerns with the purchase of green products (Braga Junior and Silva, 2014). This can be explained by Bagozzi (1981) in which the relationship of behavior and attitude is indirect and must have as a mediator the consumer intention to transform something in a concrete action.

One of the actions taken by companies to change this scenario has been the investment in marketing and advertising actions, both at sale point as an institutional basis. Consumers do not always react positively to advertisements, as evidenced by Obermiller and Spangenberg (1998, 2000), in their study on consumer's skepticism face the advertisements. This effect also produces results in environmental appeals (Monnot and Reniou, 2013; Paço and Reis, 2012; Bronn and Vrioni, 2001; Mohr, Eroglu and Ellen, 1998).

In this sense, it is important to understand whether among the strategies adopted by companies,

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it can result in a concrete action in terms of consumption of green products in retail and, therefore, the objective of this research was to analyze the effect of skepticism and environmental concerns in the intention and buying statement of green products at retail.

For this, a quantitative field research was conducted through a survey with a sample of 1,233 individuals in three Brazilian cities. The results showed that environmental concern contributes to form the purchase intention and subsequent declared purchase of green products at retail. Skepticism itself was present and showed that people do not believe in marketing appeals to form their purchase intention and purchase declaration for green products.

#### *Environment Perception and Green Consumption:*

The green consumption can be defined as the consumption that includes, in addition to price and quality variables in the decision of consumption, the environmental variable. There must be a preference for products that do not harm or which are perceived as not harmful for environment (Braga Junior & Silva, 2013; Zamora *te al*, 2011; Portilho, 2010). The consumer; therefore, expresses his environmental concerns through the recovery, search and purchase of products that cause less environmental impact.

Such a move is due to the emergence of concern that reached most companies and the general public regarding the impact of the current consumption in industrialized societies. This fact underlined the idea of green consumption, followed by the accession of business and empathy of consumer (Oliveira, Gouvea, Guagliardi, 2004; Portilho, 2010).

Even considering the companies' efforts in being environmentally friendly to meet the green consumer, Follows and Jobber (2000) tested a model where environmental concern is not a determining factor for the environmentally responsible purchasing behavior. According to the authors, there is attitude toward green consumption, but the consumption relation compared to conventional products still prevails. Following this line, Lages and Vargas Neto (2002) state that the purchase intention of environmentally friendly consumer is the result of an assessment of various objective and subjective factors which are among the environmental consequences and individual consequences that his purchasing decision may have.

However, there is still low interest and low influence of environmental concern in the purchase decision. At the same time, there is an appeal to the practice of green consumption, which makes businesses invest in increasing the supply of green products and organic products in the retail supermarket (Portilho, 2010).

Aspects such as attitude and consumer's perception are studied and analyzed to relate the ecological concern to consumption focused on reducing environmental and social impacts. More

recently, some Brazilian studies found a significant relationship between consumer's environmental concern and his intention to consume green products under various substantive areas (Quevedo-Silva, Lima-Filho and Freire, 2014; Frederico Quevedo-Silva and Freire, 2013; Braga Junior and Silva, 2014; Bedante and Slongo, 2004).

In this sense and in line with previous studies, the following hypotheses are formulated:

***H1. Environmental concern of a person has a relation with the intention of buying green products at retail:***

***H2. Environmental concern of a person has a relation with the declared purchase of green products at retail:***

This stimulus given by the market, seeks to transform the buying intention in attitude and buying behavior. That is, according to Bagozzi (1981) attitude will only influence behavior through behavioral intentions, the intentions will directly influence the direct behavior and only indirectly influence a second order behavior.

According to Ajzen and Fishbein (1977), attitudes are performed with respect to any aspect of the individual world representing his assessment of the entity. In this study, the attitude measures are the actions that the individual agrees to take in his buying behavior in retail supermarket.

Ajzen (2001) reinforces the above by saying that there is a general consensus that attitude is a brief assessment of a psychological object captured in attribute dimensions as good-bad, harmful-beneficial, pleasant-unpleasant and unsympathetic sympathetic. In this way, the author explains, the attitude has the task of facilitating the adaptation of the individual to the social environment in which he is inserted so that he can express himself, defend and adapt his behavior.

To understand how an attitude can be transformed into assertively buying behavior, one must understand how the consumer makes his decision in the buying process. Thus, the following hypothesis arises:

***H3. Purchase intent of the individual is transformed into declared purchase of green products at retail.***

#### *Consumer Skepticism in Relation to Promoting Actions:*

Although the relationship between purchase intent and declared purchase of products is well solidified, there is still the international literature few studies relating skepticism to these two dimensions of consumer behavior.

Obermiller and Spangenberg (1998, 2000), besides being considered pioneers, are the most cited authors on the subject because they have developed the first scale for measuring consumer skepticism

face advertisements. The authors define the skepticism of advertising as the individual's general trend to not believe in messages - usually of persuasive nature - used by companies in their advertisements. Significantly, it shows that the more technological advancement, the greater the possibility of companies seeking to reach consumers through communication in several media channels.

Combining the trend of using the call for green consumption by consumers, businesses expand the use of media to highlight information about this subject. In this sense, one can see that the research efforts in order to understand the skepticism in this context, or in settings where appeals of the messages are linked to social and environmental sustainability, Bronn & Vrioni (2001) studied the lack of consumer confidence and skepticism about the charitable intentions by companies. Mohr, Eroglu & Ellen (1998) confirmed that skepticism also take effect in environmental appeal advertisements. Paço & Reis (2012) investigated the background factors of skepticism about green advertisements. Monnot & Reniou (2013) theoretically articulate skepticism to the critical event after the evaluation of the communicative discourses of organizations and negative emotions produced by skepticism.

Pechpeyrou & Odou (2012) investigated the effect of skepticism in sales promotions, discovering that it affects both the belief in the promotion itself, as the intention to acquire promotional offers.

In addition to advertising retail stores make extensive use of promotional activities through

several means. Notably, actions in retail outlets produce significant effects on purchase intentions of consumers. In this sense, it is worth understanding how skepticism operates in the context of retail stores, as consumers, over time, have become reticent regarding offers from retailers (Pechpeyrou & Odou, 2012). Previously cited studies have confirmed the relation between purchase intent and declared purchase of green products. However, in a retail context, this relationship may be influenced by skepticism, since consumers can develop distrust in promotional activities as a defense mechanism in relation to green product purchases which brings out the third and final hypothesis of this study:

**H4. The individual's skepticism influences the intention to purchase green products at retail:**

**H5. The individual's skepticism influences the declared purchase of green products at retail:**

## MATERIALS AND METHOD

Given the purpose of this study, a quantitative field research was conducted through a survey in a sample of 1,233 consumers in the retail supermarket in three Brazilian capitals.

It should be noted that this study did not intend to generalize findings but to analyze the cause and effect relationship among environmental concern, skepticism, purchase intent and declared purchase of green products.

**Table 1:** Scales used in research

Construct	Lab	Items
Environmental concern	EC_1	Firms that damage or disrespect the environment should be punished.
	EC_2	Agricultural toxics and dangerous substances in food harm the environment.
	EC_3	I understand that organic products do not impact the environment
	EC_4	Environmental declarations demonstrate that the manufacturer may have concern with the environment.
	EC_5	I am concerned with pollution in my town
	EC_6	I am worried when I see people dirtying streets and parks
	EC_7	I separate recyclable wastes from organic residues at home
	EC_8	Deforesting may place the future of humanity at risk
	EC_9	I prefer public transport or bike riding
	EC_10	I feel that I may help solve the problem of natural resources by saving water and energy
	EC_11	I feel I may protect the environment by buying ecologically correct products
	EC_12	The emission of carbon dioxide damages the atmosphere
	EC_13	Plastic and paper bags destroy natural resources
	EC_14	Plastic and paper bags should be recycled and not deposited in the environment.
	EC_15	Home chemical products (detergents and cleaning products) damage the environment after use
	EC_16	I try to reuse wrappings when possible
Purchase intention	PI_1	When possible I choose products which cause the least pollution possible.
	PI_2	I avoid manufactured products that damage or disrespect the environment.
	PI_3	I buy food without agricultural toxic products since the environment is respected.
	PI_4	I pay a somewhat higher price for products and food free of chemical substances which damage the environment.
	PI_5	Difference in price interferes in my intention in buying ecologically correct products.
	PI_6	I may pay more to buy organic products since they do not impact the environment
	PI_7	I may prefer products with information on the manufacturers' environmental certificates.
	PI_8	I verify whether a product that I intend to buy does not damage the environment or other people
	PI_9	I am decided to buy concentrated products
	PI_10	I am decided to buy compacted products to reduce gas emission into the atmosphere
	PI_11	I am decided to buy products with scanty wrappings to reduce the consumption of natural resources

	PI_12	I am decided to avoid buying products with non-biodegradable wrappings.
	PI_13	I am decided to buy home chemical products (detergents and cleaning products) which are ecologically correct or biodegradable
Declared purchase	DP_1	When I buy a product I always verify whether the manufacturing firms damage or disrespect the environment.
	DP_2	I always buy food without any agricultural toxins since I am aware that I am preserving the environment.
	DP_3	I pay more to buy products that promote the protection of the environment
	DP_4	I buy organic products because they are healthier.
	DP_5	I pay more to buy organic products since they are healthier.
	DP_6	I buy products with environmental certificates since they are ecologically correct.
	DP_7	I always choose a product which causes the least damage to people and to the environment when choosing between two competitive products.
	DP_8	I always buy concentrated products since they may save water and energy
	DP_9	I buy compacted products to contribute for the decrease in gas emissions and their transport is easier
	DP_10	I always buy products with the least wrappings possible
	DP_11	I always buy ecologically correct or biodegradable home chemicals (detergents and cleaning products)

To operationalize the study, we used the scale of environmental concern, purchase intent and declared purchase of green products by Braga Junior and Silva (2013) developed and validated according to DeVellis's (2003) recommendations. This scale (Table 1) proved to be reliable for research involving green products in retail since it presents consistent results and portrays reality in the retail supermarket.

For the skepticism, the scale was translated and adapted to the context of promotional activities in retail after Obermiller and Spangenberg (1998). Researchers and marketing and retail experts as well as credited translators performed the reverse translation to check for translation distortions, as shown in Table 2.

To measure a Likert scale with five points of agreement / disagreement was used, where 1 (one) meant complete disagreement and five (5) full

agreement. As categorical variables in the study were the variables gender, age, income level and marital status and frequency to the supermarket. Individuals who reported at least fortnightly make purchases in supermarkets were considered in the sample.

For data analysis IBM SPSS Statistics 22 was used for frequency tests and for adhesion tests the multivariate normal distribution software (PK Mardia). As a further clarification, it was considered in all tests the significance level ( $\alpha$ ) of 0.05 or 5% to be more rigorous. In sequence, we performed the Structural Equation Modeling (SEM) to evaluate the consistency of the proposed model. Thus, the SmartPLS 2.0 - M3 software (Ringle, Wende and Will, 2005) was chosen as the model used in the research is composed of complex relationships and this software allows better analysis of non-adherent data to a multivariate normal distribution.

**Table 2:** Skepticism Scale Items

Construct	Lab	Itens
Skepticism (SKEPT)	Cet_1	We can depend on getting the truth in most advertising.
	Cet_2	Advertising's aim is to inform the consumer.
	Cet_3	I believe advertising is informative.
	Cet_4	Advertising is generally truthful.
	Cet_5	Advertising is a reliable source of information about the quality and performance of products.
	Cet_6	Advertising is truth well told.
	Cet_7	In general, advertising presents a true picture of the product being advertised.
	Cet_8	I feel I've been accurately informed after viewing most advertisements.
	Cet_9	Most advertising provides consumers with essential information.

Source: Obermiller e Spangenberg (1998)

### Results:

he profile of survey respondents was comprised of 69% female and 31% male. Regarding family income, the highest percentage of the sample is in the range of income over four thousand reais (26.6%), followed by income range between two and three thousand reais (24.7%). Regarding marital status, 53% are married and 47% single and all perform weekly (75%) or fortnight (25%) shopping at the supermarket.

As mentioned, for the data analysis SmartPLS 2.0 M3 software was employed. Departing from the original model with all the items of the scale, the model was tested and adjusted by eliminating items that did not have factor loadings above 0.50 (Chin, 1995) and that harm the model fit and its statistical validity.

Even so, the means, standard deviations and variation coefficients of the responses provided by the individuals of the sample collected for discarded

items were analyzed. Thus, it was possible to notice a very low variability (most submitted a response constancy or disagreement within the same question without giving a possible variability analysis).

For the model to have confirmed its statistical validity, we evaluated the  $R^2$  which is the portion of the variables that explain the constructs and indicates the quality of the fitted model. Values of 0.75, 0.50 and 0.25 are considered substantial, moderate and

weak, respectively. (Hair *et al.*, 2014). Another relevant factor is the Average Variance Extracted (AVE), their values must be greater than 0.50 to meet the convergence model (Fornell and Larcker, 1981). About Cronbach's alpha (internal consistency) and the Consisting Reliability, they are used to evaluate whether the sample is free of bias, or, if the answers as a whole are reliable.

**Table 3:** Quality criteria of no-Moderation Model settings – SEM specification – Values of average variance explained (AVE), compost reliability, R2 and Cronbach's Alpha, commonalities, redundancies of Constructs

Constructs	AVE	Compost Reliability	R <sup>2</sup>	Cronbach's Alpha	Redundancy	Commonality
Declared Purchase (DP)	0.503	0.890	0.443	0.859	0.214	0.358
Environment concern (EC)	0.538	0.913	****	0.892	0.415	0.415
Purchase Intention (PI)	0.506	0.878	0.498	0.837	0.246	0.339
Skepticism (Skept)	0.639	0.925	****	0.907	0.516	0.516
Reference Values	>0.50	>0.70	See note 1	>0.60	Positive	Positive

Note 1: Reference values for  $R^2$  in the area of social and behavioral sciences:  $R^2$  close to 2% is classified as small,  $R^2$  close to 13% as medium and  $R^2$  close to 26% as large (Coher, 1988).

The Commonality ( $f^2$ ) evaluates how each construct is "useful" for the model fit. Values of 0.02, 0.15 and 0.35 are considered small, medium and large, respectively and Redundancy ( $Q^2$ ) evaluates the accuracy of the fitted model. The evaluation criteria are values greater than zero (Hair *et al.*,

2014). After those adjustments, the average variance extracted (AVE), composite reliability,  $R^2$  and Cronbach's Alpha, Commonality ( $f^2$ ) and redundancy ( $Q^2$ ) of the constructs were assessed to analyze how the model was measured, as shown in Table 3.

**Table 4:** Comparison of square roots of AVE (in gray on the main diagonal) versus correlation between constructs – without Moderation Effect

	Declared Purchase – DP	Environmental Concern – EC	Purchase Intention – PI	Skepticism – Sketp
Declared Purchase – DP	0.7096			
Environmental Concern – EC	0.4271	0.7333		
Purchase Intention – PI	0.6477	0.7051	0.7115	
Skepticism – Sketp	-0.0932	0.1647	0.0885	0.7994

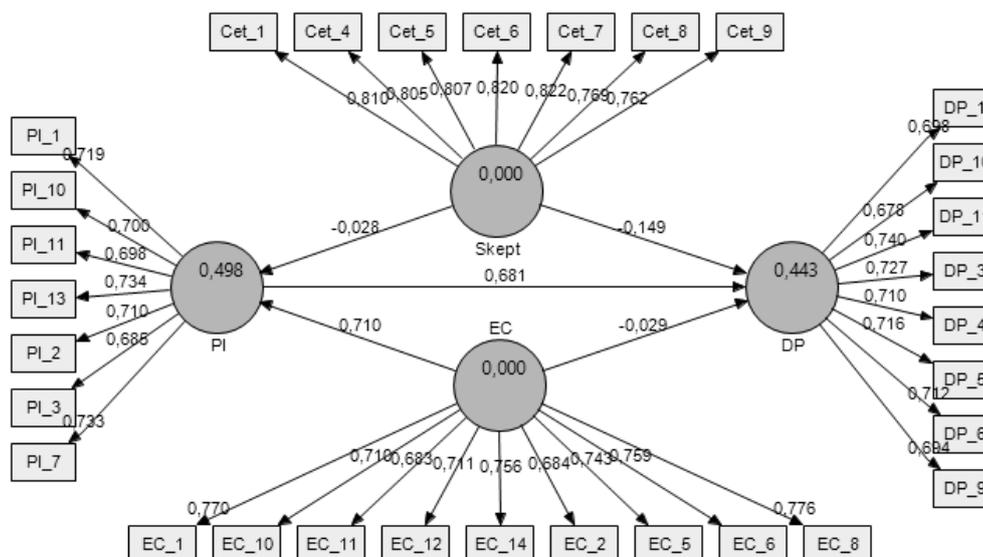
After, the discriminant validity was done, according to Fornell-Larcker, the square roots of the values of AVE for each construct with the correlations (Pearson) among the constructs (or latent variables) are compared. The square root of the AVE must be greater than the correlation of the constructs. The discriminant validity indicates the extent to which constructs or latent variables are independent of one another (Hair *et al.*, 2014), as shown in Table 4.

Nevertheless, aiming further assess the overall quality of the fitted model, we calculated the GoF indicator (Goodness-of-Fit), which is given by the geometric mean of the average  $R^2$  and the average AVE (Tenenhaus, Vinzi, Chatelin, & Lauro, 2005). The calculated value was 0.507, indicated that the model was well adjusted, since above 0.36 values are considered good for areas such as social and

behavioral sciences (Wetzels, Odekerken-Schröder, Oppen, 2009).

Included all indicators in each of their respective constructs and made the appropriate statistical adjustments, Figure 1 shows the model generated by the research and from the perception of individuals as to the effect of environmental concern and skepticism in its intention to purchase as well as these in the declared purchase.

Thus, through the values of the path betas and  $R^2$  shown, it can be inferred that these relations have explanatory power. The relationship between environmental concern and intention to purchase green products has been solidifying and demonstrating a strong influence of environmental issues on formation of consumer purchase intent. From the purchase intention to the declared purchase, it can be noticed that there is a trend of intentions to take effect in declared purchase.



**Fig. 1:** Adjusted Research Model

**Note:** All the path coefficients and factor loadings shown to be significant ( $t > 1,96$ ;  $p < 0,05$ ), and were estimated using the resampling method (bootstrap) with  $n=600$  and 1,000 repetitions (Ringle, and Wende Will, 2005).

At present, the environmental concern ceases to influence and what takes effect are factors other than more environmental issues. This statement is reinforced by the fact of the questions 2, 7, 8, 12, 13 and 14 do not fit the model and are issues concerning exactly the assessment of environmental issues at the purchase time.

On the other hand, when observed the skepticism effect on purchase intent, it is clear that consumers are less skeptical to green appeal promoted by companies than at the time of declared purchase when they are more skeptical and green

appeal does not present any interference in their decision making. One explanation may lie in the fact of the issues 2 and 3 have been discarded from the model (those are questions with informative approach and the consumer can understand them as a negative call on the product).

Thus, confirmed the quality of adjustments made to the model, it was possible to make inferences about the path coefficients, the t-value and p-value of each ratio considered in figure 1, thus, be used to assess the feasibility research, as shown in Table 5.

**Table 5:** Evaluation of Hypotheses presented in the research

	Path	Beta	t-value	p-value	Conclusion
H1	Environment Concern (EC) => Purchase Intention (PI)	0.7098	30.0975	0.0235	Supported
H2	Environment Concern (EC) => Declared Purchase (DP)	-0.0286	0.8339	0.0344	Not Supported
H3	Intenção de Compra (PI) => Declared Purchase (DP)	0.6810	15.4654	0.0440	Supported
H4	Skepticism (Skept) => Purchase Intention (PI)	-0.0283	1.1944	0.0237	Not Supported
H5	Skepticism (Skept) => Declared Purchase (DP)	-0.1487	4.5299	0.0328	Supported

Interestingly, both skepticism as environmental concerns are likely factors which have not been considered by consumers in their purchase decision, but considered when it comes to their intentions for green products. One can also infer that the higher the consumer skepticism about the promotional activities of green products, the less significant will be the relationship between purchase intent and declared purchase of green products at retail. It is possible that this happens even unconsciously by the consumer.

The findings of this study demonstrate the need to include skepticism in studies that seek to relate purchase intent and declared purchase, in the context of promotional activities.

#### Conclusion:

To assess the customer's perception for his environmental concern, purchase intent and declared purchase for green products is relevant, especially when it adds skepticism, to assess whether the promotional activities of green products companies are perceived by the consumer.

Given the objective of the work, it can be said that skepticism has predictor effect on the relationship between purchase intent and declared purchase of green products and environmental concerns. In addition, and in line with other studies, environmental concerns keep significant relationship

with the intention of buying and demonstrates that it influences intention decisions of consumer.

There is also the possibility that the consumer does not realize the importance of changing the consumption habit, being more attached in his purchase routine and past experience (as demonstrated by the confirmation of the hypothesis H2 and H5), strengthening the fact that attitude has a low influence on individual behavior, as Bagozzi (1981) has already proved. In this sense, the present study showed that the environmental concern reflects to purchase intent and should be a focus of study to transform the attitude in a behavior.

A counterpoint to be reflected about may be the possibility that consumers are looking for organic products or environmentally friendly in retail stores specialized in these products, making conventional supermarkets not to worry about investing and making this type of product in their stores, opening a research field.

Finally, the main contribution of the study to the academy was to prove that the consumer is not buying so handsome green products in conventional retail supermarket, but there is this tendency drawn, possibly even refrained by price and consumption habits, despite the effect of skepticism in his behavior.

Besides this aspect, it can be said that the scales used in the research can be used for further research, given its measurement power of the constructs in the Brazilian context. As a suggestion for further research: the application of the scales and the profile mapping of consumer of specialized retail in organic and environmentally friendly products to try to replicate these features in conventional retail, supermarket.

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