



## GREEN CONSUMER BEHAVIOR: EVIDENCE FROM THE BRAZIL – URUGUAY BORDER REGION

<sup>1</sup>Juliana Dachi Vieira  
<sup>2</sup>João Garibaldi Almeida Viana  
<sup>3</sup>Ricardo Ribeiro Alves



### ABSTRACT

**Objective:** The objective of this article was to analyze the ecologically conscious consumer buying behavior in the Brazil-Uruguay border region, paying particular attention to the influence of sociodemographic and psychographic characteristics on consumer behavior.

**Method:** The research was a descriptive, quantitative approach, using a survey in a sample of 134 consumers in the municipalities of Santana do Livramento (Brazil) and Rivera (Uruguay). The data analysis techniques used were descriptive statistics, hypothesis test and linear regression.

**Originality/Relevance:** Environmental concerns and the impact of disordered consumption in today's society are prominent themes in the consumer behavior literature. In this context emerges a trend of more conscious behavior, encouraging companies to seek sustainability practices. One challenge in this new consumer dynamic is to find out what factors lead consumers to opt for a specific product.

**Results:** The results showed that the respondents present an ecologically conscious medium-high behavior. To explain the behavior of the green consumer, the parameters of the regression models indicated a greater relevance of the psychographic characteristics in relation to the sociodemographic ones, with the variable of perceived efficacy playing an important role. Results suggest that the higher the consumer's ecological awareness, the greater their intentions to purchase sustainable products.

**Theoretical/Methodological Contributions:** The results of the study can inform marketing professionals in the planning of campaigns in order to reach the green consumer more effectively, in addition to expanding research efforts in the area of Environmental Marketing.

**Keywords:** Environmental Marketing. Green Consumption. Sustainability.

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<sup>1</sup> Universidade Federal do Pampa-UNIPAMPA, Rio Grande do Sul (Brasil). Orcid: < <https://orcid.org/0000-0001-9868-3847>>. Email: <julianadachi@hotmail.com>

<sup>2</sup> Universidade Federal do Pampa-UNIPAMPA, Rio Grande do Sul (Brasil). Orcid: < <https://orcid.org/0000-0002-8400-3166>>. Email: <joaoviana@unipampa.edu.br>

<sup>3</sup> Universidade Federal do Pampa-UNIPAMPA, Rio Grande do Sul (Brasil). Orcid: < <https://orcid.org/0000-0002-0878-209X>>. Email: <ricardoalves@unipampa.edu.br>



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**COMPORTAMENTO DO CONSUMIDOR VERDE: EVIDÊNCIAS NA FRONTEIRA BRASIL –  
URUGUAI****RESUMO**

**Objetivo:** Este artigo teve por objetivo analisar o comportamento de compra do consumidor ecologicamente consciente na fronteira Brasil-Uruguai, dando especial atenção a influência das características sociodemográficas e psicográficas no comportamento do consumidor.

**Método:** A pesquisa teve um caráter descritivo, de abordagem quantitativa, por meio da utilização de um survey em uma amostra de 134 consumidores nos municípios de Santana do Livramento (Brasil) e Rivera (Uruguai). As técnicas de análise dos dados utilizadas foram estatística descritiva, teste de hipóteses e regressão linear.

**Originalidade/Relevância:** A preocupação ambiental e o impacto do consumo desordenado nas sociedades são temas de destaque na literatura atual. Neste contexto emerge uma tendência de um comportamento mais consciente pelo consumidor, direcionando as empresas para um mercado sustentável. O desafio dessa nova dinâmica de consumo é descobrir quais fatores levam o consumidor a optar por um produto específico.

**Resultados:** Os resultados demonstraram que os respondentes apresentam um comportamento ecologicamente consciente médio-elevado. Para explicar o comportamento do consumidor verde, os parâmetros dos modelos de regressão indicaram uma maior relevância das características psicográficas em relação às sociodemográficas, com especial importância para a variável de eficácia percebida. Ainda, as estimativas apontaram que quanto mais elevada a consciência ecológica do consumidor, maior será sua intenção de compra por produtos sustentáveis.

**Contribuições teóricas/metodológicas:** Os resultados do estudo podem subsidiar profissionais de marketing no planejamento de campanhas a fim de alcançar o consumidor verde de forma mais efetiva, além de ampliar os esforços de investigação na área do Marketing Ambiental.

**Palavras-chave:** Consumo Verde. Marketing Ambiental. Sustentabilidade.

## INTRODUCTION

The advent of the Industrial Revolution brought the judgment that natural resources originated from inexhaustible sources. However, after the first half of the twentieth century, this conviction ceases to exist, evidencing the various negative environmental impacts that the acceleration in production and consumption causes to the environment. Moreover, such problems have their roots in the production and consumption of products and services, which generate detritus in a superior way to the capacity of assimilation of these by environment, thus causing a negative impact on nature and its resources (Alves, 2017).

For Akehurst, Afonso and Gonçalves (2012), awareness raising about the need to preserve the environment had an impact on markets, specifically on consumer behavior, making this a major change for management and marketing in particular.

For the consumer, until very recently, the only previous information necessary for the purchase of any product was the fulfillment of their needs and desires. Due to the increase in environmental concern, this same consumer sees his future threatened, thus generating a reflection on the impact of his consumption on nature and economy, which leads him to a more sustainable behavior. Thus, consumers begin to recognize that their consumption behavior influences the environment and become more concerned with their habits and choices (Brochado, Brochado & Caldeira, 2015).

In the view of Cobra (2009), this new consumer presents behaviors and attitudes with greater social responsibility, joining efforts to not pollute the environment, thus preserving nature. The consumer who internalizes these concerns and transfers them to their purchasing pattern is called an eco-conscious consumer or a green consumer.

The trend of more conscious behavior presented by the sustainable consumer, according to Alves (2017), has been consolidated through the marketing campaigns of both Non-Governmental Organizations (NGOs) and large organizations, using techniques directed to this type of product. These campaigns focus on the importance of minimizing environmental impacts so that the satisfaction of the needs of both consumers and companies is fully satisfied, thus arising the so-called green marketing. In this sense, according to Alves et al. (2011), the great challenge of the emergence of this new consumption dynamics is to discover which factors lead the consumer to opt for a specific product or service.

A recent study by Narula and Desore (2016) sought to identify theoretical and empirical challenges in the green consumption research agenda. For the authors, finding out why consumers buy green products, determining the factors responsible for buying green products, and exploring the importance of consumer psychographic issues are key issues to be

explored in this area of research. Akehurst, Afonso and Gonçalves (2012) corroborate these needs by emphasizing the challenge of understanding the profiles and behavior of green consumers for the development of new segmentation strategies. In the same vein, the seminal study by Straughan and Roberts (1999) highlights the importance of psychographic characteristics in the behavior of green consumption.

Thus, from the perspective of a new consumer profile and the research challenges in the field of green consumption the objective of the article was to analyze and compare the ecologically conscious consumer buying behavior in the Brazil - Uruguay border region, paying particular attention to the influence of sociodemographic and psychographic characteristics on the behavior of consumers in this region.

The hypothesis that guides the study is that the psychographic characteristics are the determinants of green consumption, overlapping in importance the sociodemographic, cultural and locational characteristics of a population. As a consequence, the intention to buy green products rises as ecologically conscious behavior increases.

Thus, in order to test the hypothesis, it is justified the applied research in the Brazil-Uruguay border region. Municipalities from two countries, on the same border region, present a rich empirical case to analyze the real importance of psychographic elements in green consumption in face of the diversity of sociodemographic and cultural characteristics of both populations.

According to Struminski (2015) there are uses and customs in the Brazil-Uruguay border that are intertwined by social and family ties, forming a common and particular cultural entity. This culture is recognized in historic facts and figures that integrate with a set of buildings and urban structures, as well as rural areas. In this sense, Pucci (2010) points out that the peculiar characteristics of the Brazilian-Uruguayan border gave rise to epithets that describe the region as "living frontier", "model frontier", "border of peace", among many others.

In Santana do Livramento - Brazil and in five other twin cities of the Uruguayan-Brazilian border, historical, political, familiar, economic and cultural ties, prior to the independence of the two countries themselves, contributed to form a union between them, the sharing of a historically constructed social space (Golin, 2002). These characteristics define the Brazil-Uruguay border as an empirical field both integrating and diverse for the environmental marketing research, being able to express behavioral peculiarities of different economic and cultural formations.

Still, the study of the ecologically conscious consumer behavior has relevance in the academic scope because it is a still new field, both in the marketing literature and in the green consumer. By linking the study to the proposed region, one perceives a bottleneck

of information that can be better explored and applied in order to develop the regional market, identifying the profile and the specific needs of the consumer and their segmentation.

### **SUSTAINABLE DEVELOPMENT AND ENVIRONMENTAL MARKETING**

Sustainable development is a term that has different meanings, given that diverse social actors can understand it in a variety of ways, since it depends on their culture, learning and way of understanding life (Hopwood, Mellor & O'Brien, 2005). For Sachs (2000), among the assumptions of sustainable development, the cultural question has a unique relevance, since it acts as a mediator between society and nature. In addition, it is also related to lifestyle, which reflects a pattern of consumption.

While on the one hand the economic development model based on consumerism represented greater comfort in people's lives through the creation of products and services, on the other hand it implied a greater demand for natural resources and the generation of waste and pollution from production and disposal of products and their packaging (Alves, 2017). Regarding the use of natural resources, Peattie and Charter (2005) highlighted two important situations: a) that the use of natural resources was carried out at a rate at which the environment could replace them or at a rate where it would allow substitution by new alternatives; (b) the production of pollutants and waste was carried out at a rate at which it could be assimilated by the environment, with the least possible negative impact.

The development of the marketing strategies in the companies was responsible, in part, for the greater stimulus to the production and the consumption of goods and services, aggravating the environmental problematic; on the other hand, the same marketing can be an important element in its minimization, through the adoption of environmental marketing strategies (Alves, 2017).

Environmental marketing is a change in the way companies do business because it requires them to have environmental responsibility and commitment. In addition, it represents the set of information sent to the consumer about the product and the production system, ranging from the actions of the company to the environment during the production to guidance to the people on how to use the product more efficiently and on its reuse, repair, recycling and rejection, if applicable (Coddington, 1993; Welford, 1995; Prakash, 2002).

Environmental marketing is as much part of the inherent characteristic of social marketing as of commercial marketing. In the first case, environmental marketing adopts the new values of society as a concern

regarding the preservation of the environment, optimization of natural resources, conscious consumption and concern for future generations. From a commercial point of view, environmental marketing inserts more specifically the variable "environment" as a requirement of competitiveness for companies, expanding the concept of meeting the needs and desires of consumers by incorporating their demands for so-called green products (Alves, 2017).

### **Consumer Behavior and the Environment**

Some people consume not only what they need, but also buy products that are considered superfluous. For some scholars, acquiring something necessary for their subsistence alone is a kind of utopian consumption for present-day society, largely because of the constant influence of the media and the great publicity for the realization of desires unrelated to basic human needs. This is the basis of the explanation for what is called consumerism.

In impulse buying, the individual acts without minimal cognitive efforts, surrendering to the buying impulse without assessing their risks and disregarding the possible consequences in the future, such as disappointment, regret or financial problems arising from the acquisition. In other cases, the individual realizes the purchase as a way to reduce their emotional conflicts, managing their mood and seeking the generation of positive emotions, such as joy and pleasure (Hausman, 2000).

Individuals consume products and services without reflecting on what they are doing because, from their point of view, they are actually doing natural and to some extent automatic things, such as driving, eating or playing. They rarely understand their behavior as a "consumer" (Warde, 2005). There are other cases in which behavior can be considered as "compulsive" that results from compelled and impelled impulses, being inappropriate or harmful to the individual (Woodruffe-Button, Eccles & Elliott, 2002).

According to Baghi, Rubaltelli and Tedeschi (2009), several companies try to persuade the consumer about supposed charms and benefits of their products and services, making use of artificial devices questionable ones, some of which are known as belonging to the "black side of marketing," called by Mick (1996) the "dark side of consumer behavior."

Consumers are the great incentive for companies to offer products and services. And, in particular, products and services that are environmentally responsible, the basis for the formulation of environmental marketing strategies. As Ottman (2012) pointed out, in the past environmental marketing practitioners believed that people cared about environmental issues because they thought the

planet was being harmed; now, however, these professionals realize that consumers fear that the planet is losing its ability to maintain human life, which makes them worry about their health and that of their children.

This emerging concern with the environment causes consumers and organizations that represent them to begin to act in favor of the cause, which often means boycotting a particular product, brand or company. This provokes an increase in "green consumerism", defined by Zülske (1997) as a consumer movement aimed at questioning production, mass communication, marketing techniques, the dangers arising from some products placed on the market, the quality of certain goods and information provided by undertakings, among other aspects of consumer relations. In addition to questioning, Ottman (1994) points out, consumers go on to buy only products they consider "green", leaving "non-green" products on the shelves.

There is greater consumer confidence in the self-styled "green" companies, and, rather than being organic, the organization must behave responsibly, environmentally and socially. The relationship between the consumer and the company must be based on trust, so the consumer must demand products and services that internalize environmental issues (Alves et al., 2011). For this reason, the creation of a strong institutional image associated to environmental sustainability becomes important for companies. Hamza and Dalmarco (2013) highlighted the integration of corporate social responsibility and sustainability practices into the competitive strategies of organizations in the retail sector. In turn, Dalmarco, Hamza and Aoqui (2015) reported the main aspects of the implementation of sustainable strategies in a large Brazilian company in the cosmetics sector.

According to Verplanken and Holland (2002), even in relatively richer countries, values are "a necessary but not sufficient condition" for activating sustainability behavior. This behavior is also influenced by problem awareness and individual behaviors (Nordlund & Garvill, 2003) and requires political and cultural changes (Huppel & Ishikawa, 2009). For Hofstede (1984), cultural values change over time and change to individualism as wealth increases. Other contributing factors are changes in the socioeconomic environment, institutions and experiences experienced from different generations, including educational experiences.

On this aspect, it can be said that societies with capitalist and competitive systems, such as those of Western countries such as the United States, Europe and countries of South America, such as Brazil, generally promote "personal self" and individual success; on the other hand, societies with a collective social orientation such as that of Asian and African countries and in some places in South America promote the idea of "belonging to a group". Thus, the notion of

values can be used as a lever to introduce "education for sustainability" into corporate education programs. (Seeley, 1992; Triandis & Suh, 2002; Sidiropoulos, 2014). The values that people and groups possess are established based on the cultural aspect. In this regard, Solomon (2016) emphasized that culture can be understood as a set of meanings, rituals, norms and traditions that are shared among the members of an organization or society.

The cultural aspect varies from region to region within the same country and often brings important differences in different countries. Brands from different countries also carry these meanings. Recchia, Hamza and Luppe (2015) have identified how the country of origin of brands can influence the perception of value and the purchase intention of consumers of premium products in Brazil.

In this context, the concept of green consumer is summarized as "individuals who seek to consume only the products that cause the minor - or do not exert any - impact on the environment" (Afonso, 2010, p.32). According to Cobra (2009), the existence of this new consumer is perceived from the moment in which the products have evidenced their environmental responsibility in the gondolas of the supermarkets. For the author, the more consumers look for this type of product, the more companies will be influenced, and somehow forced to rethink their production process, otherwise they will be excluded from the market.

Among the various types of sustainable products, we can highlight the certified products that, according to Hamza and Dalmarco (2012), are relevant for conscious consumption and business, especially in the production of consumer goods and their commercialization.

In order to increase the knowledge about the behavior of the green consumer, Roberts (1996) developed the ECCB (Ecological Conscious Consumer Behavior) scale, through an approach regarding the behavior of this specific consumer and its relationship with sociodemographic characteristics. Subsequently, Straughan and Roberts (1999) improved the scale, also relating it to psychographic characteristics such as altruism, perceived efficacy, liberalism and environmental concern. Afonso (2010) affirms that altruism implies the overlap of group cooperation and consideration of individual choices; the perceived efficacy corresponds to how much the consumer realizes that his attitude makes the difference in the general behavior; liberalism refers to the non-representativeness of political values, or to how much the state should or should not influence the environment; and environmental concern refers to the individual's level of apprehension about environmental problems.

More recently, Akehurst, Afonso and Gonçalves (2012) re-examined the determinants of ecologically conscious behavior, perfecting the ECCB

scale and scoring hypotheses to be tested on green consumption. The hypotheses are based on the premise of the positive influence of sociodemographic and psychographic characteristics on the conscious consumption and the relationship between environmental awareness and green purchase intention, as follows:

- a) Hypothesis 1: Sociodemographic variables are relevant to explain the behavior of the ecologically conscious consumer.
- b) Hypothesis 2: The psychographic variables (altruism, liberalism, environmental concern and perceived efficacy) are relevant to explain the behavior of the ecologically conscious consumer.
- c) Hypothesis 3: The psychographic variables are more relevant than the sociodemographic variables to describe the ecologically conscious consumer profile.
- d) Hypothesis 4 - Consumers with high ecologically conscious behavior have a higher intention to buy green products.
- e) Hypothesis 5 - There is a positive relationship between the actual buying behavior and the intention to buy green products.

The authors' approach points to the need to rethink marketing strategies from a new perspective, which should not only include the economic and financial impact of decisions, but also the social and ecological components of the purchasing process.

Therefore, the analysis of the behavior of the green consumer is positioned as a theoretical-empirical challenge within the area of environmental marketing. In this perspective, the ECCB scale (Roberts, 1996; Straughan & Roberts, 1999; Akehurst, Afonso & Gonçalves, 2012) presents a theoretical-methodological framework capable of evaluating the level of green consumer behavior, sociodemographic and psychographic characteristics in the behavior and intention to buy.

Thus, testing the hypotheses of Akehurst, Afonso and Gonçalves (2012) in other socio-cultural realities is an important research challenge in the field of environmental marketing, in order to prove the importance of the psychographic characteristics in ecologically conscious buying behavior, reinforcing this different dependence in empirical frameworks. Moreover, validating or not assumptions in new scenarios can help marketers to glimpse the determinants of green consumption, leading to an alignment between sustainable business strategies, market segmentation, and consumer buying decisions.

## METHODOLOGY

The article was developed through a descriptive research. In order to accurately and reliably

measure the data, a quantitative approach was used, with the use of the survey as a research method. The survey was chosen because it is a collection of primary information from the application of a structured research instrument, which encompassed several variables capable of testing the research hypothesis.

As a data collection instrument, a structured questionnaire was adopted, adapted from Afonso (2010), using a five-point Likert scale, requiring respondents to indicate a degree of agreement or disagreement regarding their ecological behavior and their psychographic characteristics. The questionnaire originates from the Ecologically Conscious Consumer Behavior (ECCB) scale, developed by Roberts (1996) with 30 scale variables plus 4 sociodemographic questions, and replicated by Straughan and Roberts (1999), which in addition to those already mentioned included plus 22 variables with psychographic issues related to altruism, perceived efficacy, environmental concern and liberalism. Its main objective was to verify the relationship between the demographic and psychographic variables with the behavior of the green consumer, as well as to relate these characteristics to the intention of buying the sustainable consumer.

Thus, it is understood that the ECCB scale, adapted to this study, is adequate to the objectives, considering its ability to test the hypotheses listed by Akehurst, Afonso and Gonçalves (2012) on consumer buying behavior ecologically conscious. Thus, the instrument has conditions to verify the adequacy of the hypotheses in the diverse socio-cultural reality of the Brazil-Uruguay border.

The questionnaire was divided into four sections, the first one dealing with ecologically conscious consumer behavior with twenty-one questions; the second approaching the psychographic characteristics with issues related to altruism, perceived efficacy, environmental concern and liberalism, totaling twenty-two questions, similar to the study by Straughan and Roberts (1999); the third one referred to the intention to buy green products with three questions, according to Afonso's study (2010) and the last one dealt with the sociodemographic characteristics counting on six questions: age, gender, marital status, children, schooling and gross family income.

In order to analyze and compare the behavior of the green consumer in the Brazil-Uruguay border, the inhabitants of the twin municipalities of Santana do Livramento (Brazil) and Rivera (Uruguay) were used as research universe. The study was conducted from a population sample. Thus, two sample groups of consumers (Brazil and Uruguay) were calculated from the "Sampling for a Proportion of Population Ratio" technique described in Anderson, Sweeney and Williams (2005), according to equation 1.

$$n = \frac{Z^2 \cdot p \cdot q}{\epsilon^2} \quad (1)$$

Where: n = sample size; z = confidence level (95%); p = proportion of the economically active population in the total population of Santana do Livramento e Rivera; q = (1-p); ε = margin of error (10%).

For the calculation, we used data from the total population and economically active population of Santana do Livramento (IBGE, 2014) and Rivera (MTS, 2012), with a confidence level of 95% and a margin of error of 10%, resulting in a sample of 67 individuals in each municipality (n = 134). The selection was made through a non-probabilistic sampling by quotas that, according to Hair Jr et al. (2005), has the purpose of proportional selection of elements within strata of the population based on convenience. The strata can be delimited according to characteristics of interest in order to seek the best possible representation of the population. In this sense, quota sampling was used in the survey to select the consumers of the Brazilian and Uruguayan sample group, respecting sociodemographic strata of the target population.

The research instrument was applied in both sample groups, Brazilian consumers and Uruguayan consumers, adapted in both languages. The process of data collection took place electronically and in person

in the central city districts, in a period of forty-five days, from September to October 2016.

The data analysis techniques used were descriptive statistics, t-student hypothesis test and simple and multiple linear regression with the aid of the IBM SPSS 20 software. The descriptive measures were used to characterize the profile and the behavior of the ecologically conscious consumer of the two sample groups. In turn, hypothesis tests and linear regression were used to answer the hypotheses 1 to 4 of Akehurst, Afonso and Gonçalves (2012). The joint analysis of these four hypotheses makes it possible to test the general hypothesis of the introduced research.

The t-student hypothesis test was used to verify the existence of a difference or not of the ecologically conscious consumer behavior of the sample of the two countries, with a maximum significance level of 5%.

We used the linear regression technique to measure the influence of sociodemographic, psychographic and buy-in characteristics on sustainable consumer buying behavior, testing the hypotheses of Akehurst, Afonso and Gonçalves (2012) presented in the previous section. Equation 2 was used to analyze hypothesis 1, equation 3 was used to analyze hypotheses 2 and 3, and equation 4 was used to analyze hypothesis 4.

$$Y_{ECCB} = \alpha + \beta_1 \text{Gender} + \beta_2 \text{Children} + \beta_3 \text{Income} + \beta_4 \text{Educ. D1} + \beta_5 \text{Educ. D2} + \epsilon \quad (2)$$

Where: YECCB = Sum of the Ecologically Conscious Consumer Behavior Scale; Gender = Female (0), Male (1); Children = Don't have (0), Have (1);

Family income = R\$/month; Education Dummy 1 = 0 Elementary school; 1 High school; Education Dummy 2 = 0 Elementary school; 1 Higher Education.

$$Y_{ECCB} = \alpha + \beta_1 \text{Altruism} + \beta_2 \text{P. Efficacy} + \beta_3 \text{E. Concern} + \beta_4 \text{Liberalism.} + \epsilon \quad (3)$$

Where: YECCB = Sum of the Ecologically Conscious Consumer Behavior Scale; Altruism, Perceived Efficacy, Environmental Concern and

Liberalism = mean scores of the variables of each psychographic factor.

$$Y_{Intention} = \alpha + \beta_1 \text{ECCB} + \epsilon \quad (4)$$

Where: YIntention = Sum of the Purchase Intention Score; ECCB = Average scores of the

variables of Ecologically Conscious Consumer Behavior.

Finally, the results of the hypothesis test and the estimates of the linear regression models were organized and presented in tabular form and discussed with the ECCB scale literature in order to reach the objectives proposed by the research.

**RESULTS AND DISCUSSION**

The research sample was divided into two major groups, Brazilian consumers and Uruguayan consumers. Data were collected from 134 consumers, divided into 67 respondents from each border municipality. It should be noted that the sample maintained a good distribution of the respondents in relation to the gender, presenting a certain balance. Both samples presented respondents in their majority in the age group between 18 and 37 years, totaling 75% of the respondents in the cumulative. Still, it is worth mentioning that despite a higher percentage in this age group, all age groups were represented, evidencing, therefore, the participation of consumers of the most diverse ages.

By means of the educational variable, it was verified that the majority of the respondents of both samples had high school, followed by college.

However, the samples included all levels of schooling, which represented the diversity of the variable. As for the income variable, the two samples had an average gross family income of around R \$ 3,700.00 (approximately 3.5 minimum wages). The income results range from R \$ 400.00 to R \$ 16,000.00, thus covering respondents from different social classes. Therefore, through the analysis of sociodemographic data it was possible to perceive that the research reached different consumers, which included all age groups, income levels, schooling levels and a good gender distribution, covering the most different profiles within the samples extracted from the populations.

In order to evaluate the behavior of the consumer, in a similar way to the study presented by Afonso (2010), a summation of the scores obtained regarding the Ecologically Conscious Consumer Behavior (ECCB) was carried out, performing a grouping and defining the levels of behavior as follows : a) 0-34 points - Ecologically Conscious Behavior Low; b) 35-70 points - Ecologically Conscious Medium Behavior; c) 71-105 points - Highly Ecologically Conscious Behavior.

Table 1 shows the mean, minimum and maximum values obtained in the questions. Despite having similar averages, Uruguay has an average of 0.35 points higher than Brazil.

	N	Minimum	Maximum	Mean	Standard deviation
<b>S. do Livramento/Brazil ECCB</b>	67	26	105	72,45	17,23
<b>Rivera/Uruguay ECCB</b>	67	25	103	72,80	17,11

**Table 1** – Classification of ecologically conscious consumer behavior (ECCB) in the sample of the Brazil-Uruguay Border.  
**Source:** Search data

It is important to note that both countries, although they are in the range of Ecologically Conscious High Behavior classification, are very close to the limit of the score between medium and high, so it can be considered that populations have similar behaviors and their ideal classification would be Ecologically Conscious Middle-High Behavior.

Table 2 shows data to be analyzed in relation to the difference of means of the ECCB scale, the psychographic characteristics and the intention to buy between the Brazilian and Uruguayan sample from the

t-student hypothesis test. It can be observed that the averages of the Brazilian and Uruguayan samples presents a similarity, standing out the means of the ECCB and the intention to buy. The only significant difference (P <0.05) between the samples is with respect to perceived efficacy.

Table 2 - General analysis of the difference between ECCB averages, psychographic characteristics and purchase intent of samples at the Brazil - Uruguay border.

	S. Livramento/Brazil Mean	Rivera/ Uruguay Mean	t	p Value
<b>ECCB</b>	3,49	3,52	-0,195	0,846



<i>Psychographic Characteristics</i>				
Altruism	4,37	4,24	1,026	0,307
Perceived efficacy	4,19*	3,88*	2,281	0,024
Environmental concern	4,06	3,82	1,545	0,125
Liberalism	4,25	4,15	0,791	0,431
<b>Purchase Intention</b>	3,48	3,51	-0,138	0,891

**Table 2** – General analysis of the difference between ECCB averages, psychographic characteristics and purchase intent of samples at the Brazil - Uruguay border.

\*(P<0,05)

Source: Search data.

The Brazilian consumer, when presenting a higher average in relation to perceived efficacy, demonstrates a superior perception on the influence of his attitudes on the environment and the act of consuming. This factor becomes relevant to marketers to direct their advertising campaigns towards how much an individual attitude can influence the whole, triggering a greater interest on the part of the consumer for a product that demonstrates such contributions, translating into an effective purchase

Table 3 presents the analysis performed in relation to the questions that demonstrated significant difference between the samples regarding the behavior presented by the consumer when choosing a product. Of the 21 questions asked to the ECCB respondents,

there were 3 that represented a significant difference between the samples. Regarding the psychographic questions, of the 23 questions asked, 4 presented a significant difference between Brazil and Uruguay.

It is important to highlight that the questions that presented a higher level of difference (P <0.01) between the cities were, in the ECCB scale, in relation to the "use of detergent for clothing with low phosphate level", with a higher average presented by Uruguayan sample. On the other hand, in psychographic issues, the one that stood out the most was about environmental concern, where he affirmed that "Earth has finite space and limited resources", with emphasis on the average of the Brazilian sample.

	S. Livramento (Brazil)	Rivera (Uruguay)	t	p Value
<b>ECCB</b>				
I drive as little as possible to save energy.	3,13**	3,63**	-2,172	0,032
I have already changed my consumption habits for certain products for ecological reasons.	3,78*	3,41*	1,706	0,090
I use a detergent for clothes with low phosphate level.	2,30***	2,94***	-2,711	0,008
<b>Psychological Characteristics</b>				
<b>Perceived Effectiveness</b>				
When I buy a product, I try to consider how much it can affect the environment and others.	3,51*	3,11*	1,865	0,064
Since one-person action has an impact on solving environmental problems, it makes a difference what I do.	4,27*	3,90*	1,929	0,056
<b>Environmental Concern</b>				
The Earth has a finite space as well as limited resources.	4,49***	3,76***	3,501	0,001
<b>Liberalism</b>				
I am in favor of revising the tax regime so that companies and individuals with the highest income contribute the most.	4,36**	3,89**	2,254	0,026

**Table 3** – Specific analysis of the difference of means between the ECCB and the psychographic characteristics of the samples at the Brazil - Uruguay border..

\*(P<0,10); \*\*(P<0,05); \*\*\*(P<0,01)

Source: Search data.

Although the samples presented similar averages, it is worth mentioning that the Brazilian sample presented a higher average in all the psychographic variables, indicating a greater concern with ecological issues. Also, if we take into account the variable that addresses the finite space of the planet and its limited resources, a significant difference is observed between the means of the two countries, pointing to a greater awareness of the scarcity of natural

resources by the Brazilian sample. Regarding purchase intentions, the hypothesis test did not show any significant difference in relation to the means presented by the samples of the two countries.

Tables 4 and 5 present the results of linear regression (equation 1) for measuring the influence of sociodemographic characteristics on the ECCB of the Brazilian and Uruguayan sample.

Brazilian Model	Coefficients $\beta$	t	p Value
Intercept	53,054	5,852	0,000
Gender	-1,798	-0,443	0,660
Children	15,180	3,693	0,000
Income	-0,001	-1,488	0,142
Education	14,499	1,712	0,092
Dummy High School			
Education	21,923	2,488	0,016
Dummy Higher Education			
R <sup>2</sup>	0,236		
Kolgomorov-Smirinov (p value)	0,993		
Durbin-Watson	1,988		

**Table 4** – Parameters of the linear regression model adjusted to the sociodemographic variables of the Brazilian sample..

Source: Search data.

Uruguayan Model	Coefficients $\beta$	t	p Value
Intercept	55,129	5,243	0,000
Gender	1,143	0,225	0,823
Children	9,016	1,851	0,070
Income	0,001	1,064	0,293
Education	10,900	1,154	0,254
Dummy High School			
Education	7,034	0,678	0,501
Dummy Higher Education			
R <sup>2</sup>	0,121		
Kolgomorov-Smirinov (p value)	0,943		
Durbin-Watson	1,675		

**Table 5** – Parameters of the linear regression model adjusted to the sociodemographic variables of the Uruguayan sample.

Source: Search data.

The assumptions of the multiple linear regression of normality of the distribution of values of the dependent variable (Kolgomorov-Smirinov test) and the presence of autocorrelation of the residues (Durbin-Watson test) were analyzed. The results confirmed the normality of the dependent variable and the absence of autocorrelation of the residuals (independence), satisfying the assumptions of the regression model.

According to Table 4, the sociodemographic variables that influence the behavior of the ecologically conscious consumer of the Santana do Livramento sample, adopting a significance level of 5%, are the fact that the respondent has children and schooling in higher level. In the results of Rivera's sample (Table 5), the level of significance can be reduced to 10%, it can be considered that the fact that the respondent has children influences the behavior of the consumer ecologically conscious. In the Brazilian sample, the fact that a person has children presents a scale of conscious behavior approximately 15 points higher than a person without children, keeping other factors constant. In relation to their education, a person with higher education presents a scale of conscious behavior approximately 22 points higher than a person with elementary education, keeping other factors constant.

These results corroborate the findings of Akehurst, Afonso and Gonçalves (2012) that demographic variables such as gender, age and income are not relevant to explain ecologically conscious behavior. However, the authors did not introduce in their study the variable of presence of children in the family. The inclusion of this variable in the present research allowed to identify its relevance in green consumption, bringing evidence about the importance of this social aspect for environmental marketing.

It is worth reflecting that the presence of children in the family can become a determining factor

of change towards a more conscious consumption pattern. Research by Beck and Pereira (2012) sought to compare the environmental concern and conscious consumption of groups of respondents with and without children. The results indicate that the group with the presence of children in the family showed greater environmental concern, especially regarding the future of their descendants. This fact stimulated a more conscious consumption and aspects of long-term preservation, contrary to what was identified in the group without children, corroborating the results found here.

However, it should be noted that the level of influence of sociodemographic characteristics in the decisive purchasing process is low in both cities. In Santana do Livramento (Brazil), the sociodemographic characteristics influence 23.6% of the variation of the behavior of the green consumer, already in Rivera (Uruguay), presents an even lower value, 12.1%. In this way, Hypothesis 1 is partially accepted. Although they do not exert a high influence on the behavior of the ecologically conscious consumer, sociodemographic variables of having children and higher level of education influence the search for more sustainable products.

This data is relevant to environmental marketing professionals who seek to reach this specific consumer profile. Thus, according to the data obtained, the border region consumer with a high level of education takes into account, to a greater degree, the sustainability of the products before making their purchase, making it possible to carry out campaigns of marketing aimed at this particular consumer.

Tables 6 and 7 present the results of linear regression (equation 2) for measuring the influence of the psychographic characteristics on the ECCB of the Brazilian and Uruguayan sample.

<b>Brazilian Mode</b>	<b>Coefficients <math>\beta</math></b>	<b>t</b>	<b>p Value</b>
<b>Intercept</b>	-10,117	-0,799	0,427
<b>Altruism</b>	0,886	0,291	0,772
<b>Perceived Efficacy</b>	13,093	4,767	0,000
<b>Environmental Concern</b>	0,712	0,305	0,762
<b>Liberalism</b>	4,911	1,895	0,063
<b>R<sup>2</sup></b>	0,462		
<b>Kolgomorov-Smirinov</b> (p value)	0,993		
<b>Durbin-Watson</b>	2,048		

**Table 6** - Parameters of the linear regression model adjusted to the psychographic variables of the Brazilian sample.

Source: Search data.

Uruguayan Model	Coefficients $\beta$	t	p Value
Intercept	6,141	0,676	0,501
Altruism	5,268	1,829	0,072
Perceived Efficacy	8,548	3,610	0,001
Environmental Concern	2,728	1,075	0,287
Liberalism	0,179	0,086	0,931
R <sup>2</sup>	0,539		
Kolgomorov-Smirinov (p value)	0,943		
Durbin-Watson	2,028		

**Table 7** – Parameters of the linear regression model adjusted to the psychographic variables of the Uruguayan sample.

**Source:** Search data

Likewise, the assumptions of the multiple linear regression of normality of the distribution of values of the dependent variable (Kolgomorov-Smirinov test) and the presence of autocorrelation of the residues (Durbin-Watson test) were analyzed. The results confirmed the normality of the dependent variable and the absence of autocorrelation of the residuals (independence), satisfying the assumptions of the regression model.

According to Table 6, the psychographic variable that influences the behavior of the ecologically conscious consumer, adopting a level of significance of 5%, is perceived efficacy. This data is repeated in Table 7, showing that, as regards the influence of the psychographic characteristics, both samples present a similar result.

Perceived efficacy, that is, how much the individual perceives that his actions in relation to the consumption of sustainable products generate of positive impact to the society, observed in the results of the research is somewhat encouraging in the samples of the two countries, considering that the consumer has assimilated not only the importance of their role in relation to conscious consumption, but also the importance of the valorization of companies that cherish social responsibility in their processes of manufacturing green products.

On this issue, several companies seek to segment consumers based on the knowledge they have about a particular product, the attitudes toward it, the use and the reactions that originate from that product. For many marketers this is the best way to segment markets. Thus, by combining the psychographic and behavioral variables, it is possible to identify consumers who are "conscious" about environmental aspects and, hence, to offer more sustainable products (Kotler and Keller, 2013, Kotler and Armstrong, 2015, Alves, 2017).

When comparing the results with the international literature, we also note the importance of perceived efficacy in conscious consumption in emerging countries such as India. The results of Jaiswal and Kant (2018) support the hypothesis that perceived efficacy has a positive and significant impact on ecologically conscious consumer behavior. On the other hand, the behavior of the green consumer of India is also affected by variables of environmental concern, in contrast to the results found in the Brazilian and Uruguayan sample.

In a similar study, Nguyen et al. (2016) examined the influence of four psychographic factors (environmental concern, ecological effect, perceived efficacy, and moral obligation) on Vietnam's pro-environmental behavior. The authors report the growth of environmental degradation in the region and the importance of this problem for consumption decisions. Similarly to the results found in the Brazil-Uruguay border sample, Nguyen et al. (2016) state that perceived efficacy is the main determinant of pro-environmental behavior in Vietnam, corroborating the importance of developing in the consumer the perception that their attitude makes a difference in the sustainable behavior of society in general.

When flexibilizing the level of significance to 10%, we find relevance in two other psychographic variables: liberalism (P = 0.063) in the Brazilian sample and altruism (P = 0.072) in the Uruguayan sample. The estimates also show that the results obtained in relation to the explanation that the psychographic variables exert in green consumer purchasing behavior are 46.2% in Brazil and 53.9% in Uruguay.

Estimates with psychographic characteristics reinforce the conclusions Straughan and Roberts (1999) and Akehurst, Afonso and Gonçalves (2012). In their research, the psychographic variables proved to be more effective in characterizing ecologically conscious behavior. Within this psychological scope, Akehurst,

Afonso and Gonçalves (2012) highlight the significance of the variables of perceived efficacy and altruism in the explanation of green consumption. Moreover, the authors emphasize that more than constructing marketing strategies focused on environmental concerns, it is necessary to value the dimension of individual action, as there is evidence of the importance of the consumer to understand the real impact of their actions on environmental preservation.

In this way, Hypothesis 2 is partially accepted, because in the Santana do Livramento sample, perceived efficacy and liberalism were relevant, while in Rivera's sample, the perceived efficacy and altruism were highlighted in relation to the influence exerted on the environmentally conscious consumer behavior.

Hypothesis 3 is validated integrally in both samples, since the models estimated with the psychographic variables present a higher level of explanation ( $R^2$ ) than the models estimated with the sociodemographic variables. This is in line with the study by Straughan and Roberts (1999) and Akehurst, Afonso and Gonçalves (2012), where the psychographic variables act with greater influence on the behavior of the ecologically conscious consumer.

Table 8 and 9 present the results of linear regression (equation 3) for measuring the influence of ecologically conscious consumer behavior on the purchase intention of the Brazilian and Uruguayan sample.

Brazilian Model	Coefficients $\beta$	T	p Value
Intercept	-0,304	-0,231	0,818
ECCB	3,066	8,384	0,000
$R^2$	0,52		
Kolgomorov-Smirinov (p value)	0,211		
Durbin-Watson	2,049		

**Table 8** – Parameters of the linear regression model adjusted consumer behavior ecologically conscious of the Brazilian sample.

Source: Search data.

Uruguayan Model	Coefficients $\beta$	T	P value
Intercept	0,544	0,39	0,698
ECCB	2,816	7,314	0,000
$R^2$	0,451		
Kolgomorov-Smirinov (p value)	0,128		
Durbin-Watson	2,042		

**Table 9** - Parameters of the linear regression model adjusted consumer behavior ecologically conscious of the Uruguayan sample.

Source: Search data.

The assumptions of the multiple linear regression of normality of the distribution of values of the dependent variable (Kolgomorov-Smirinov test) and the presence of autocorrelation of the residues (Durbin-Watson test) were analyzed. The results confirmed the normality of the dependent variable and the absence of autocorrelation of the residuals (independence), satisfying the assumptions of the regression model.

From the analysis of the coefficients in tables 8 and 9, it was verified that a higher level of ecologically conscious behavior influenced a greater intention to buy green products in the Santana do

Livramento e Rivera sample ( $P < 0.01$ ). The results also indicate that the Brazilian sample presented a slightly more intense relationship, where for each point of the ECCB Likert scale there are 3,066 points in the intention to buy for sustainable products. Hypothesis 4 is integrally validated, since an ecologically more conscious behavior translates into a greater intention to buy for sustainable products from the local consumer.

In summary, Table 1 presents the hypotheses proposed by Akehurst, Afonso and Gonçalves (2012), the models used for their test and the decision on their validity based on the results of the sample of consumers from the Brazil and Uruguay border.

Hypothesis	Regression Model	Decision
Socio-demographic variables are relevant to explain the behavior of the ecologically conscious consumer.	$ECCB = f(\text{Sociodemographic Charact.})$	Partially accepted
Psychographic variables (altruism, liberalism, environmental concern and perceived efficacy) are relevant to explain the behavior of the ecologically conscious consumer.	$ECCB = f(\text{Psychographic Charact.})$	Partially accepted
Psychographic variables are more relevant than sociodemographic variables to trace the ecologically conscious consumer profile.	$ECCB = f(\text{Sociodemographic Charact.})$ $ECCB = f(\text{Psychographic Charact.})$	Accepted in full
Consumers with high ecologically conscious behavior have a higher intention to purchase green products.	$\text{Purchase Intention} = f(ECCB)$	Accepted in full

**Board 1** - Ecologically conscious consumer hypotheses (ECCB) and validation in the sample of the Brazil-Uruguay border

**Source:** Prepared by the authors based on the results of the research

It is observed that the results of the research on the Brazil-Uruguay border converge with the conclusions of applied studies of the international literature on green consumer behavior, considering that the hypotheses proposed in the article were validated according to the original study. In addition, the results found substantiate Akehurst, Afonso and Gonçalves (2012, p. 983) that "it is more relevant for consumers to believe in the effectiveness of their actions as individuals in preserving the environment than merely worrying about the environment".

**CONCLUSIONS**

The present study contributed to the knowledge about the behavior of the green consumer. From the empirical data, the statistical estimates made it possible to prove the general hypothesis of the study. The results obtained, in general, indicate that the majority of the respondents present a high ecologically conscious behavior. Although studies in the international literature found that the sociodemographic variables are not relevant to explain the behavior of the ecologically conscious consumer, when analyzing the individual variables in the Brazil-Uruguay border region, it was observed that the fact that the consumer has children has a positive influence significant in their buying behavior.

Likewise, in relation to the psychographic characteristics, the present study, when evaluating them individually, found that not all exert an influence on consumer behavior. However, they still have an important influence on consumer behavior.

The empirical analysis reinforces the importance of psychological characteristics in the theoretical construction of green consumer behavior. Independent of the sociodemographic and cultural diversity of consumers in two different countries (Brazil and Uruguay), their psychographic characteristics, especially perceived efficacy, are those that direct and influence their ecologically conscious buying behavior.

It is worth noting that estimates have determined that the higher the ecological awareness of the consumer, the greater their purchase of sustainable products will be, thus the results show that this behavior reflects a search for products that respect the environment.

Considering the need to preserve the environment and the awareness that consumer behavior has been changing over time, it is natural to assume the importance of the study results for marketing agents. In this sense, professionals when verifying the variables that exert greater influence in the decision-making process of the consumer can direct their campaigns, develop new products, adjusting the logistics and the place in which they will dispose of them, in order to reach their specific consumer more effectively.

By means of the results pointed out by this study, it is verified that the combination between the mentioned scales proved to be adequate and effective in achieving the defined objectives. The results found in the research contribute to increase the knowledge of this subject, opening space for a new way of visualizing marketing, both in academia and in the business sector, providing relevant data in the area of study of ecologically conscious consumer behavior in Brazil -

Uruguay and adding elements to this new phase of marketing, Environmental Marketing, which is still in its infancy.

The present study was limited to the study of two frontier cities between Brazil and Uruguay and their results cannot be extrapolated to other border regions, given their particularities. It is also understood that the use of a non-probabilistic sample has inferential limitations. However, some challenges for future research can be drawn from the theoretical review and the empirical data collected. The combination of mixed research methods can deepen the knowledge about the psychographic characteristics of consumers.

The use of qualitative techniques such as narrative studies and focus groups can be useful to uncover the specificities of the psychological effect on green consumption. Also, international studies point to the need to evaluate how much consumers are willing to pay for green products, with the goal of understanding the relationships between price, income and consumption. Finally, another important avenue for future research is to examine the correlation between the degree of awareness and green consumption with the development of green innovations in consumer markets.

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