The influence of gender, the usage status and country of residence on car purchases in Brazil and Portugal

Abstract

With the evolution of female interest in the automobile market, it became necessary to identify differences between men and women regarding the intention of buying a car, and to promote deeper knowledge of the industry segment to better understand consumer's behaviour. Thus, the study evaluated 651 individuals over 18 years old who wanted to buy a car within a year, living in Portugal and Brazil. Data collection took place between June and July 2013. This study found that not all constructs covered by the survey were influenced when comparing men and women. When compared the influence of the country of residence between the study's populations, the variable country of residence had an influence on the attributes presented to research's participants. The condition of the vehicle (old or new) also influences the potential automobile consumers surveyed, as noted in the study. Additionally some attributes that had no gender differences when purchasing a new car exhibit differences when purchasing a used one. The study therefore showed that there are gender differences in the intention of buying a car and that these differences are highlighted when the variables usage state and country of residence are introduced in the analysis.

Keywords: Brazil. Portugal. Consumer Behaviour. Intention of Buying. Car Industry.

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1 INTRODUCTION

The influence of gender on the intention of buying a new or used car by residents in Portugal and Brazil is the central theme that directed the research of this study. The study sought to evaluate the influence of gender, the usage status and country of residence.

Silverstein and Sayre (2009) report that women represent a market booming, bigger than China and India combined, so one should not ignore or underestimate the female consumer. Jato and Licht (2008) explain that the expansion of women in the labor market has enabled an increase in their acquiring power and therefore their purchasing power, causing many sectors to target their marketing efforts to satisfy women, focusing not only on the market male.

Prieto and Caemmerer (2013) comment that the car industry plays an important role in the global economy, which is reflected in the Gross National Product (GNP) of developed countries.

The study seeks to answer the following research problem - What are the factors that influence residents in Brazil and Portugal in the purchase of new or used cars, considering the gender of these consumers? With the overall aim of identifying aspects of preference of each gender in buying a new or used vehicle, having two countries has the study's location: Portugal and Brazil.

2 BEHAVIOUR OF THE CAR CONSUMER

Buying a car takes the consumer to a decision process in which he assesses the factors that most pleases him. However it appears that the external environment influences the consumer's choice, causing him not to complete a certain purchase. Factors such as

incompatible income and the need for social acceptance are some items that influence the decision making process (Ajzen, 2011; Blackwell *et al.* 2005; Mowen and Minor, 2003).

In light of the factors set out by the authors it can be said that the consumer is influenced by several variables such as attributes, emotional connection, external influences, awareness and accessibility, which are characterized as strong determinants when buying a car. The authors add that the brand is a powerful mean of differentiation that, when well-crafted, can generate a positive image in the vehicle consumer, and can create an emotional connection (Narteh *et al*., 2012; Lee and Simon, 2009).

2.1 The Importance of Attributes and Accessibility in the Automotive Industry to create a brand connection with the Consumer

Lee and Simon (2009) explain that the car brand image consists of the consumer's perception about the product, and that the associations with the brand are generated through the attributes provided by the dealers. The study conducted by the authors in Kazakhstan reveals that car brands with an image formed more by buyers have a more positive effect on the assessment of the benefits.

Narteh *et al.* (2012) comment that a brand can generate emotions in the buyer that make him create a similar connection to the relationship with a friend or family. To the authors a car brand can generate in the consumer intense, positive and negative feelings. A good experience with a brand of a particular vehicle will stay in the consumer's emotional memory, generating a connection far beyond the need for transportation. Jalilvand and Samiei (2012) confirm that the brand image consists in associations that the consumer builts after the consumption experience.

Lin and Chen (2006) confirm that the recognition of a country as a specialist in a particular product brings a significant positive effect on the consumer's purchasing decision. Pappu *et al.* (2006) found that the conception of consumers about television and car brands varied according to the country of residence.

However, to determine the influence of this attribute Wu (2011) compared the influence of the country of residence with the following variables, brand name, service and price with the intrinsic functions, such as reliability, safety, style and fuel efficiency, in which the item country of residence under review, represented a minor influence on decision-making, as demonstrated in Grohmann *et al.* (2012) that ranks it amongst the least influential.

Understanding the variation in the degree of importance of the attributes Odekerken-Schröder *et al.* (2003) report that a turning point for the success of auto factories is the treatment developed by dealers, since those who are closest to the customer can develop along with the factories a good relationship marketing.

Herrmann *et al.* (2007) evaluated the relationship between the satisfaction of the German vehicles' customer with the right price. They found that the price idea directly influences the buyer's satisfaction. The authors also found that the price and the contact with the dealers or any member of a dealership are important factors in the decision to purchase a car and that there are several steps in buying a car, such as information search, analysis of alternatives, the delivery of the vehicle and others.

Narteh *et al.* (2012) explain that dealers should be accessible to consumers so they can make their purchases with the greatest possible comfort.

2.2 Gender Characteristics in the Consumer's Behavior in the Purchase of Cars

Jato and Licht (2008) explain that the car appeared in the society as a means of transport, but that over the years it has become a product full of meaning. The authors go on to comment that with the increasing of the women's participation in the market one more variable appeared, gender. According to scholars it is important to understand whether there are differences between men and women.

By identifying such importance, Creusen (2010) developed a survey in European countries to evaluate the perception of each gender in ten products, one of them being the car. The author used a seven points scale of importance to verify the variables, aesthetics, symbolism, functionality, ease of use and quality of the product. The researcher found that women place more importance on symbolic aspects, aesthetic, functional and product ease of use, being the greatest differences, according to the author, in the expressive characteristics, aesthetic and symbolic.

To further deepen the gender issue, Funk and Ndubisi (2006) evaluated other gender variations by studying the item colour. Besides significance, attractiveness, and colour's preference of various car owners in Malaysia, it was found that the impact of the colour's attractiveness is higher in women and that men are more concerned with the symbolism that the colours represent.

Artoni *et al.* (2010), with recognition of the importance of the suitability of items to increase the credibility of the car, selected some attributes and divided them into three categories: Internal, External and Marketing and Sales.

3. RESEARCH METHODOLOGY

The research was descriptive and exploratory. The respondents selected had the intention of buying a new or used car in a maximum of one year, aged 18 years or older, living in Brazil or Portugal, with the majority of respondents living in the cities, Juiz de Fora, Rio de Janeiro and Belo Horizonte (Brazil), and Porto (Portugal).

Quantitative research (Malhotra, 2006) in the transverse Survey model provided a database via online survey monkey software, assessed with SPSS for Windows 17® (Statistical Package for Social Sciences) and Microsoft Excel®.

The questionnaire was divided into three parts: (a) items that introduced the research objectives and the required profile to participate in it, (b) opinions of respondents on the variables that were divided into thirteen constructs via a seven points Likert scale (c) demographic data of respondents.

The sample of the non-probabilistic type, not random intentional, for convenience and accessibility, to the public chosen in Brazil and in Portugal, corresponding to 651 respondents, of which 305 were from Brazil and 346 from Portugal.

4 RESULTS

After the theoretical research on the behavior determinants in a possible purchase, it became possible to develop a theoretical model of the constructs and the influences in the degree of its importance in the purchase intent. The model is presented in Figure 1, in it is possible to visualize the important constructs in the intention of buying a car and influencing characteristics. **(Figure 1 here).**

By assessing articles that had informations on the intention of buying a car, the degree of importance of the constructs, and the relationship between the usage state, gender and residence it was possible to reached some conclusions.

Regarding gender, the authors Creusen (2010), Funk and Ndubisi (2006), Vrkljan and Anaby (2011), Artoni *et al.* (2010), Nayum *et al.* (2013) admit that there are differences between men and women in the evaluation of the constructs of a vehicle.

As for the statements of the country of residence these were supported by Maxwell *et al.* (2009), Funk and Ndubisi (2006), Narteh *et al.* (2012), Lee and Simon (2009), Souiden *et al.* (2006), Oliver and Lee (2010) and Wu (2011) which confirm that the country of residence influences the perception of the constructs. And the hypothysis of the usage state was based on the researchers Kathuria and Singla (2012), Buskens and Weesies (2000), Prieto and Caemmerer (2013), that explain that when choosing a used car the items are evaluated differently from a new car.

4.1 Exploratory Data Analysis

Before testing the hypotheses is important to first explore the database, performing a diagnosis to verify the existence of any problems so that there are no negative consequences later (Tabachnick and Fidell, 2001) and ensure that the sample is part of the population defined in the study. Thus, we first checked and excluded respondents who were not part of the population of interest and then we made a diagnosis of the missing data and univariate and multivariate outliers.

The three sample selection criteria were: (1) having 18 or more, (2) wanting to buy a car within a year, and (3) living in Portugal or Brazil. In Portugal, a total of 935 questionnaires were collected, however, 47% of them were not part of the population of interest. In Brazil only 28% of the 541 questionnaires collected were not part of the sample of interest and were

therefore eliminated. After ensuring that the respondents that should not remain in the sample were eliminated the missing data was evaluated. After these eliminations, the sample from Portugal had 346 cases and the sample from Brazil had 305 cases. It was found that 47% is from Brazil and 53% from Portugal.

Regarding the usage state of the car that respondents intended to buy, we observed that the percentages in the two countries are reversed. In Portugal about 72% plan to buy a used car while in Brazil that percentage is only 35%.

Socio-demographic characteristics were also observed on the respondents. In Portugal, we interviewed 346 individuals, 49.1% men and 50.9% women, while in Brazil there were 305 interviews, 48.5% women and 51.5% men.

In regards to the marital status, the percentages were different. The proportion of single respondents in Portugal (68.8%) is higher than in Brazil (47.9%), and the proportion of married in Portugal (29.5%) is lower than in Brazil (44.3%), as well as the percentage of separated respondents. In Portugal, the groups with incomplete above higher education had a higher distribution, and in Brazil the percentage of postgraduates *stricto sensu* or higher (complete or incomplete) was superior. The results show that in Portugal there was a greater distribution of the groups, and in Brazil some categories presented more proportion.

4.2 Validity and Reliability of the Scale

Normally, the validity and reliability of the constructs are tested by first performing an Exploratory Factor Analysis (EFA), so to check the one-dimensionality of the constructs, and then attest its convergent and discriminant validity through a Confirmatory Factor Analysis, through a Structural Equation Model (Hair *et al.*, 2009).

Meanwhile, through the AFE, it is also possible to test the convergent validity of a construct provided that the variables have high factor load and the explained variance of the construct is

also high. The reliability of the constructs will be tested using Cronbach's alpha. And the discriminant validity of the constructs will be measured by the method proposed by Netemeyer *et al.* (2003).

Regarding the extraction method, extraction by principal components was used, and has a rotation method the varimax rotation was used, which tends to load the variables in the first factor (Hair *et al.*, 2009). To set the number of factors, we used the criterion of eigenvalues, which represents the amount of variance of the construct that is explained by each factor.

The research sample, with the withdrawal of the identified cases of excess missing data, now has 651 respondents. The number of variables used in the analysis was 62. Thus, the sample had 10.5 respondents for each variable.

In respect to correlations Hair *et al.* (2009) argue that the correlation matrix should present a number of substantial correlations with coefficients above 0.300. Considering the total number of variables of the various constructs, it was found that of the 138 possible correlations between variables 116 had a value greater than 0.300, which is equivalent to 84%. This value is high and satisfactory.

In addition to ensuring that the data meets the assumptions of the analysis, one should also check that they are suitable for implementation of the ERA. Therefore, two measures are checked. The first is the Kaiser-Meyer-Olkin (KMO), which indicates the ratio of the data variance that can be considered common to all variables. This measure varies from 0.000 to 1.000, and the closer it is to 1,000 the better the result is, ie more appropriate is the sample to the application of the factor analysis.

The second measure that should be evaluated is the Bartlett Sphericity Test (BST), which reveals that the population correlation matrix is not an identity. The significance of BST must be less than 1% in order to ensure that the use of EFA is appropriate.

Attested the appropriateness of the use of AFE to the poll data other measures are employed to ensure that the factor solution is of quality. This is the moment where we can check the convergent validity of the constructs. Therefore, we evaluated the explained variance of the construct and the commonality and factor loadings of the variables. The first must be at least 50%, because this value can explain a significant portion of the existing variation (Hair *et al.*, 2009). Commonalities represent the total amount of variance that a variable shares with all others included in the analysis, and has a value between 0.00 and 1.00. To be considered appropriate it should have a value of 0.40 for each of the variables (Hair *et al.*, 2009). The factor loading shows the correlation of each variable with its factor and also varies from 0.00 to 1.00. To be suitable it must also present a value above 0.40, in addition, when the construct has more than one dimension, the variables with very similar load in more than one factor are inadequate (ideally with a difference of at least 0.200), because they go against the principle of discriminant validity.

As already mentioned, to test the reliability of the constructs found in the AFE the Cronbach's alpha will be used, which checks if the scale is free from random error (Malhotra, 2006). It ranges from 0.00 to 1.00, the closest to 1.00, the higher the reliability of the scale. To test the discriminant validity of the constructs we used the method proposed by Netemeyer, Bearden, Sharma (2003), which consists in the calculation of the confidence interval of 95% of the correlation based on Fisher's function. If the value found is less than 1, it can be stated that there is discriminant validity between the constructs. Note that to verify the correlation of constructs their transformation in variables through the weighted average by factor loadings was required.

4.3 Difference test based on the variables of interest

The study's hypotheses were related to three categorical variables: country of residence, sex and the usage state of car intended to buy. The aim was then to test whether the categories of these variables showed different importance regarding the different attributes used to assess the cars; we also evaluated the influence of the interaction of the categories in order to also produce differences.

The realization of several t tests for independent samples increase the chance of committing type I error we decided to use the same because they are much less sensitive to this type of deviation when they have a large sample, as is the case of this research (Malhotra, 2006). In this case: Ho: $\mu_D = 0$ and H_1: $\mu_D \neq 0$.

Moreover, if the significance of the test statistic is less than 1%, the null hypothesis of no difference between the means is rejected (Malhotra, 2006). We opted for the 1% significance level to reduce the chance of committing the type 1 error as it was increased by performing several tests.

The results **(Table 1 here)** show, about the variable country of residence, that Brazil's residents had an average value of importance superior for all attributes in relation to Portugal's residents. The greatest differences were found for the F13 attributes - Resale (0.98), F10.1 - Tradition and brand reputation (0.92), F11.1 - Media Influence (0.85) and F2 – Service network (0.83).

Regarding the variable Sex statistically significant differences at 1% were found only for six of the 17 variables tested. The differences were smaller than 0.50, and in most cases the female respondents had higher means than male respondents, except for the variable F4 - Appearance and F11.2 – Groups of influence for which men presented higher importance. In regards to the Usage state of the car, of the 17 variables tested, only three showed no statistically significant differences, those who want to buy a new car had higher averages from those who plan to buy a used car. The biggest differences were found in F7.1 -

Expensive accessories (0.72), F8 - Comfort and space (0.61), F5 - Security (0.57), F7.2 - Common Accessories (0.52) and F10.1 - Tradition and brand reputation (0.52).

(Table 2 here) shows the difference between country of residence and Usage state of the car for men and women. Comparing the differences between men residing in Portugal and in Brazil and between women residing in Portugal and Brazil some observations have been raised. The first is for the variables: F4 - Appearance; F6 - Price and payment conditions; F9 - Services and service of the dealership; F10.2 - Associations with the brand; and F11.2 - Groups of influence; which showed no statistically significant differences between men residing in Portugal and in Brazil, but showed statistically significant differences among women residing in Portugal and in Brazil, noting that those from Brazil have more importance than those from Portugal.

In the case of the variables: F5 - Security; and, F12 - Environmental impact; men residing in Brazil had a higher average importance when comparing to residents in Portugal, but there were no significant differences between women who live in Portugal and Brazil. In the case of variables: F1.2 - Resistance; and F10.1 - Tradition and brand reputation; both men and women showed statistically significant differences for residents in Portugal and Brazil. However, the difference found for the variable F1.2 - Resistance for men residing in Portugal and Brazil was 0.41 higher than women, and people residing in Brazil showed a superior average in relation to Portugal. As for the F10.1 variable - Tradition and brand reputation the difference of women from Brazil in relation to the ones from Portugal was higher, of the order of 0.44, compared to the differences of men living in Brazil in relation to residents in Portugal.

Comparing the differences between men who want to buy a used or new car and women who plan to buy a used or new car some observations have been raised. It was found that with respect to the variables: F1.1 - Driveability and performance; F6 - Price and payment

conditions; and F9 - Services and service of the dealership; men who plan to buy a new car give greater importance than those who plan to buy a used car. For women there were no differences between those who want to buy a used or new car.

In the case of the variables: F11.1 - Media Influence; and F13 - Resale; women who wish to buy a new car had a higher average importance than women who plan to buy a used car, while men who plan to buy a new car showed no statistically significant differences between these attributes than those who plan to buy a used car.

(Table 3) shows the difference between Country of Residence and Sex for people who want to buy a used car or a new car. Comparing the differences between those who want to buy a used car residing in Portugal and in Brazil, and between those who want to buy a new car residing in Portugal and in Brazil, some observations have been raised. The first is related to the variable F10.2 - Associations with the brand, which showed no significant differences between those planning to buy a new car residing in Portugal and in Brazil, but significant differences between those planning to buy a used car residing in Portugal and in Brazil.

In the case of variable F9 - Services and service of the dealership, those planning to buy a new car residing in Brazil, had a higher average importance to the residents in Portugal, but there were no statistically significant differences among individuals residing in Portugal and in Brazil.

We found that regarding to the variables: F1.2 - Resistance; F6 - Price and payment conditions; and F9 - Services and service of the dealership; statistically significant differences between male and female subjects were not found between thoso who plan to buy a new car, but statistically significant differences between male and female individuals who want to buy a used car, and the women presented greater importance than men.

The other variables that were not mentioned above, but are presented in Appendix 12, showed no statistically significant differences for both sexes or showed similar differences, when comparing the country of residence or the sex.

(Table 4 here) shows the difference between sex and usage state of the car for persons residing in Portugal and Brazil. Comparing individuals who are male and female residing in Portugal and individuals who are male and female residing in Brazil some observations have been raised. The first concerns the variables; F1.2 - Resistance; F5 - Security; and F10.2 – Brand's social status; female individuals from Portugal had a superior average of importance when compared to male individuals from Portugal while individuals who are male and female residing in Brazil showed no statistically significant differences.

For variable F4 - Appearance, female individuals from Portugal had an inferior average of importance when compared to male individuals from Portugal, while individuals who are male and female residing in Brazil showed no statistically significant differences.

In the case of variables F13 - Resale no statistically significant differences were found in the opinions of men and women who live in Portugal, but it was found that women who reside in Brazil had a superior average of importance when comparing to men residing in Brazil. Comparing the differences between individuals residing in Portugal who plan to buy a used or new car and individuals residing in Brazil who want to buy a used or new car some observations have been raised.

We also found that in regards to variable F10.1 - Tradition and brand reputation individuals residing in Portugal who plan to buy a new car give greater importance than individuals residing in Portugal who plan to buy a used car, while for individuals residing in Brazil no differences between those who want to buy a used or new car were found.

Reagrding the variable F10.1 - Tradition and brand reputation we also found that individuals residing in Portugal who plan to buy a new car give greater importance than individuals

residing in Portugal who plan to buy a used car, while for individuals residing in Brazil no differences between those who want to buy a used or new car were found.

In the case of variable F11.2 - Groups of influence, individuals residing in Brazil who want to buy a used car give greater importance than those who reside in Brazil and want to buy a new car, while for those residing in Portugal no differences were found between those who want to buy a used or new car.

5. CONCLUSIONS

By identifying the influences, the present study focused the research in individuals with eighteen years or older, living in Brazil and Portugal who wanted to buy a car in a maximum of one year. The assumptions about the constructs were based on three characteristics: country of residence, gender and usage status, categorized by various authors as described in Chapters 3 and 4 as influencers of the constructs in the purchase intention of a car. Thus it was determined that the variables, gender, usage status and country of residence differentiate the assessment of the items with the intention of buying a new or used car. The **(Table 5 here)** provides a summary of the hypotheses tested.

Considering the individual differences between the independent variables, it was found that among countries of residence statistically significant differences were found at 1% for all attributes, noting that Brazil has attibuted a greater importance than Portugal. The greatest differences were found in items, resale, tradition and brand reputation, media influence and service network.

If the case of gender, only the constructs: F1.2 - Resistance; F4 - Appearance; F6 - Price and payment conditions; F9 - Services and service of the dealership; F10.2 – Brand’s social status; and F11.2 – Groups of influence; showed statistical significance at a level of 1%, noting that the men gave more importance to some, and the women gave more importance to the rest.

Men classified the items: F10.2 – Brand's social status of the; and F4 - Appearance; with a greater degree of importance than women. In the assessment of the 17 studied constructs, on average women gave more value to the attributes presented in the survey than men. Creusen (2010) studying the demographic variable gender found that the woman gives more value the ease of use and the expressive aspects. Based on the authors Grohmann *et al.* (2012) who rated the items of the cars in expressive and functional, services and service of the dealership, price and payment conditions and brand's social status, were confirmed as expressive and resistance as functional amongst those with difference. In opposition Creusen (2010), the study found that appearance and brand's social status which are expressive are most valued by men, but it is noteworthy that when we examine all the research's expressive constructs, the females are on average more concerned with such aspects, which confirms the Creusen (2010) studies on expression.

As for ease of use construct assessed in driveability and performance the difference was insignificant in both sexes. What reaffirms the position of Jato and Licht (2008) when describing about the care that one must have when directing the car to women, as many societies envision the car as a symbol of social equality and the differentiation, when poorly prepared, can ward off the female audience. The authors also found that females have similar representations to the male gender, which was confirmed by this study, since in the analysis of the 17 constructs only six showed statistical significance.

In the case of state usage only attributes: F10.2 - Associations with the brand; F11.2 - Groups of influence; and F3 - maintenance cost; did not show statistically significant differences at 1% among all evaluated. Individuals who intended to buy a new car showed greater importance on the attributes in relation to the used car. The economic situation may lead potential buyers to look for a used car, which might decrease the demands of the consumer of the automotive sector. It is important to note that 71.7% of respondents in Portugal opted for

the purchase of a used car what might be a reflection of the country's economic situation as explained by the authors Prieto and Caemmerer (2013).

To check if the interaction between the variables country of residence, usage status and gender show differences the following was considered: first, one of the variables was isolated and compared to the other two. If the first category of the first variable presented a difference between the categories of the second variable, but not presented for the second category of the first variable we considered that there was a difference. Each of the three variables were isolated and compared to the other two based on them.

Regarding the interaction between Country of residence and Sex, we observed that the attributes: F1.2 - Resistance; F4 - Appearance; F5 - Security; F6 - Price and payment conditions; F9 - Services and service of the dealership; F10.1 - Tradition and brand reputation; F10.2 - Associations with the brand; F11.1 - Media Influence; F11.2 - Groups of influence; and, F12 - Environmental impact; showed statistical significance at 1%, when the Country of residence variable was isolated or vice versa.

Considering the interaction between country of residence and usage status only the attributes: F4 - Appearance; F9 - Services and service of the dealership; F10.2 - Associations with the brand; and F7.1 - Elaborated accessories; showed statistical significance at 1%, not only when the variable Country of residence was isolated but also when the variable usage status was islolated.

Finally, in the case of the interaction between Sex and Usage status the attributes: F9 - Services and service of the dealership; F1.2 - Resistance; F6 - Price and payment conditions; F1.1 - Driveability and performance; F11.1 - Media Influence; and F13 - Resale; showed statistical significance at 1%, not only when the variable Gender was isolated but also when the variable usage status was isolated. In the case of the interaction between the three variables, it wasn't possible to be tested, since the MANOVA was not adequate to the data.

After the above analysis, it is clear that gender has an influence on some constructs of the buying intention of a new or used car, because when gender residents in the same country were compared these did not show the same degree of importance to the constructs. It is important to mention that when the variable usage status is added the perceived degree of importance suffers some influences on the evaluation of the constructs. In addition, when the variable country is introduced in the gender comparison, we found that Brazilian women evaluated some attributes differently from the Portuguese, and the same thing happened with the male gender.

It is possible to emphasize these aspects in the communication with the consumer, in the making of the product, in the distribution and in the payment conditions. As Kotler and Keller (2005) explain that the consumers should be understood because identifying the consumer's needs and desires increases the possibility of success of the company’s strategies

The study offered significant contributions to the academy and to organizations in the automotive sector. However, it is important to show its limitations and the first was the period of the quantitative research (survey), which occurred at a single time (cross), with no monitoring during the collection period to check whether respondents would change their mind. We also advise to the conduction of a qualitative study, like focus groups to study the demographic variables and other automobile attributes, as well as target the type of car that the individual intends to buy.

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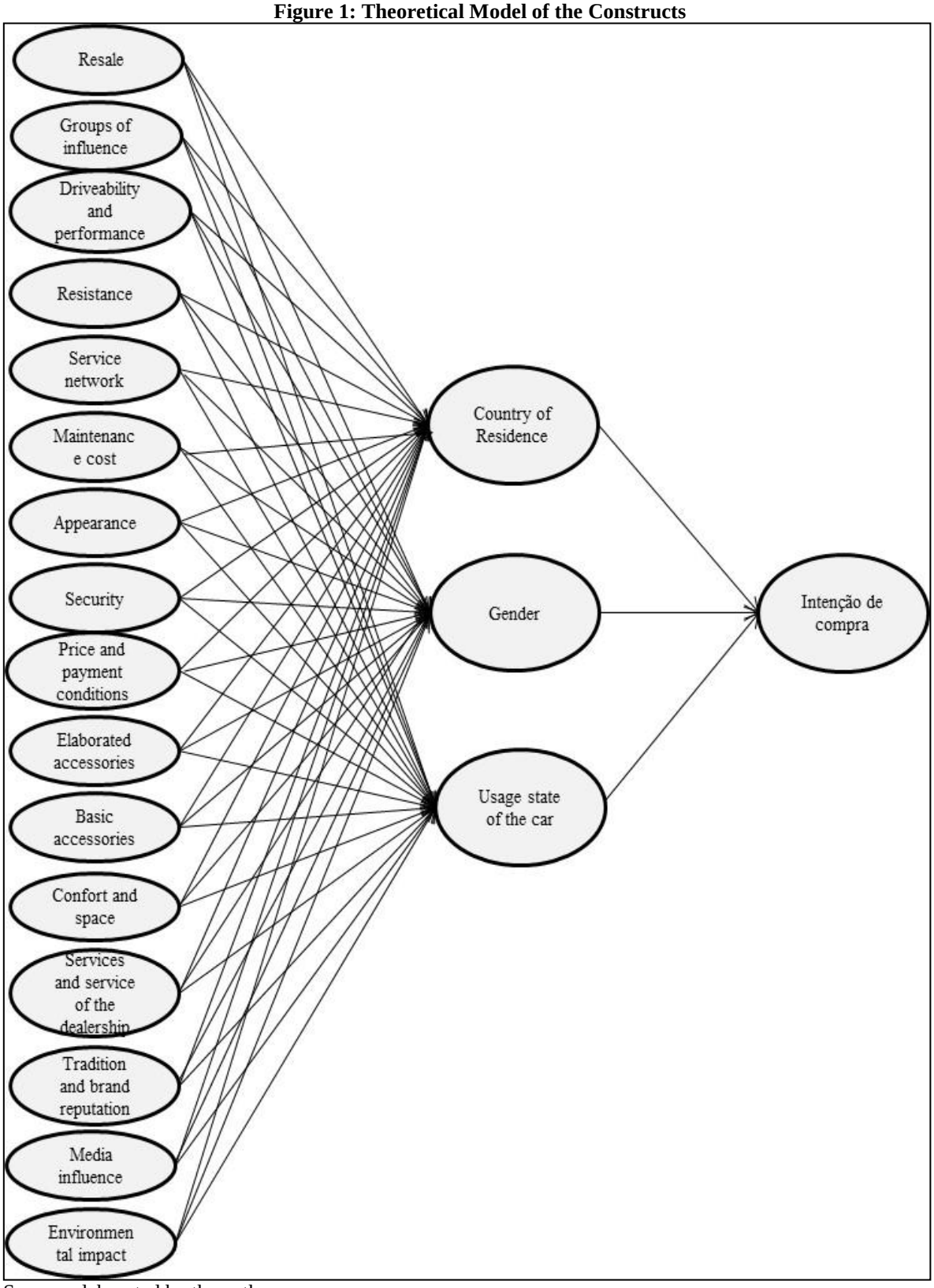
Figure 1: Theoretical Model of the Constructs



Source: elaborated by the authors.

Table 1: Test t to verify the difference in the importance of the attributes based on the Country of Residence, Sex and Usage state of the car

Attributes	Country of Residence			Sex			Usage state of the car		
			≠	Male	Female	≠	Used	New	≠
F1.1 – Driveability and performance	5,48	5,91	0,43*	5,73	5,64	-0,09	5,51	5,89	0,38*
F1.2 – Resistance	5,01	5,60	0,59*	5,11	5,45	0,33*	5,09	5,51	0,42*
F2 – Service network	5,51	6,34	0,83*	5,82	5,97	0,15	5,69	6,14	0,45*
F3 – Maintenance costs	5,64	5,89	0,25*	5,65	5,86	0,21	5,71	5,82	0,11
F4 – Appearance	5,28	5,58	0,29*	5,56	5,29	-0,27*	5,20	5,68	0,48*
F5 – Security	5,32	5,64	0,32*	5,38	5,56	0,18	5,21	5,78	0,57*
F6 – Price/payment conditions	5,24	5,63	0,38*	5,26	5,58	0,32*	5,29	5,58	0,30*
F7.1 – Elaborated accessories	3,24	4,09	0,85*	3,73	3,54	-0,19	3,31	4,03	0,72*
F7.2 – Basic accessories	5,79	6,29	0,50*	6,08	5,97	-0,11	5,79	6,31	0,52*
F8 - Confort and space	5,43	5,86	0,43*	5,60	5,67	0,07	5,35	5,96	0,61*
F9 – Services and service of the dealership	5,32	5,70	0,38*	5,37	5,63	0,26*	5,33	5,70	0,37*
F10.1 - Tradition and brand reputation	5,16	6,08	0,92*	5,61	5,58	-0,03	5,36	5,88	0,52*
F10.2 – Social status of the brand	3,36	3,87	0,51*	3,78	3,43	-0,35*	3,47	3,76	0,29
F11.1 – Media influence	4,27	5,12	0,85*	4,66	4,68	0,02	4,52	4,85	0,34*
F11.2 – Groups of influence	4,16	4,57	0,42*	4,12	4,57	0,45*	4,38	4,33	-0,05
F12 – Environmental impact	5,21	5,59	0,37*	5,29	5,49	0,20	5,25	5,56	0,31*
F13 – Resale	5,40	6,38	0,98*	5,73	5,98	0,25	5,72	6,03	0,31*

Source: Research data. Observations: The averages marked in blue present a statistically significant importance at the level of 1%, reported also by the *. Diferences represented by ≠.

Table 2: Test t to verify the diference in the importance of the attributes isolating the variable Sex in order to interact with the variable Country of Residence and Usage state of the car

Attributes	Male			Female			Male			Female		
			≠			≠	Used	New	≠	Used	New	≠
F1.1 – Driveability and performance	5,54	5,95	0,41*	5,42	5,88	0,46*	5,48	6,00	0,51*	5,53	5,77	0,24
F1.2 – Resistance	4,74	5,54	0,80*	5,26	5,65	0,39*	4,87	5,38	0,50*	5,29	5,65	0,37*
F2 – Service network	5,48	6,22	0,75*	5,54	6,45	0,90*	5,56	6,10	0,54*	5,80	6,18	0,38*
F3 – Maintenance costs	5,55	5,77	0,22	5,73	6,01	0,27	5,57	5,75	0,19	5,84	5,90	0,06
F4 – Appearance	5,48	5,66	0,18	5,10	5,51	0,41*	5,33	5,82	0,49*	5,09	5,54	0,45*
F5 – Security	5,15	5,65	0,49*	5,49	5,64	0,15	5,11	5,68	0,58*	5,30	5,89	0,59*
F6 – Price/payment conditions	5,09	5,45	0,36	5,38	5,79	0,41*	5,06	5,48	0,43*	5,49	5,69	0,20
F7.1 – Elaborated accessories	3,27	4,27	1,00*	3,21	3,92	0,71*	3,39	4,11	0,73*	3,24	3,93	0,69*
F7.2 – Basic accessories	5,85	6,35	0,49*	5,73	6,24	0,51*	5,86	6,33	0,47*	5,73	6,29	0,56*
F8 - Confort and space	5,38	5,84	0,46*	5,48	5,88	0,40*	5,31	5,91	0,59*	5,39	6,03	0,63*
F9 – Services and service of the dealership	5,20	5,56	0,36	5,45	5,83	0,38*	5,13	5,63	0,50*	5,51	5,77	0,26
F10.1 - Tradition and brand reputation	5,29	5,98	0,69*	5,05	6,18	1,14*	5,38	5,86	0,49*	5,34	5,90	0,56*
F10.2 – Associations with the brand	3,60	3,99	0,39	3,13	3,77	0,63*	3,70	3,88	0,18	3,27	3,64	0,37
F11.1 – Media influence	4,35	5,02	0,67*	4,21	5,22	1,01*	4,60	4,73	0,13	4,45	4,99	0,54*
F11.2 – Groups of influence	3,94	4,33	0,39	4,37	4,80	0,43*	4,15	4,10	-0,05	4,58	4,57	-0,02
F12 – Environmental impact	5,07	5,53	0,46*	5,35	5,64	0,29	5,13	5,45	0,32	5,35	5,67	0,32
F13 – Resale	5,27	6,27	1,00*	5,52	6,49	0,97*	5,60	5,88	0,28	5,82	6,18	0,36*

Source: Research data.

Table 3: Test t to verify the difference in the importance of the attributes isolating the variable Usage state of the car in order to interact with the variable Country of Residence and Sex

Attributes	Used			New			Used			New		
			≠			≠	Male	Female	≠	Male	Female	≠
F1.1 – Driveability and performance	**5,41**	**5,74**	0,33*	**5,65**	**6,00**	0,35*	5,48	5,53	0,05	6,00	5,77	-0,23
F1.2 – Resistance	**4,94**	**5,45**	0,51*	**5,17**	**5,68**	0,50*	**4,87**	**5,29**	0,41*	5,38	5,65	0,28
F2 – Service network	**5,46**	**6,23**	0,77*	**5,63**	**6,39**	0,76*	5,56	5,80	0,24	6,10	6,18	0,08
F3 – Maintenance costs	5,62	5,93	0,31	5,72	5,88	0,16	5,57	5,84	0,27	5,75	5,90	0,14
F4 – Appearance	5,19	5,24	0,05	5,53	5,76	0,23	5,33	5,09	-0,23	5,82	5,54	-0,27
F5 – Security	5,20	5,23	0,03	5,62	5,86	0,24	5,11	5,30	0,20	5,68	5,89	0,21
F6 – Price/payment conditions	5,19	5,52	0,34	5,38	5,68	0,30	**5,06**	**5,49**	0,43*	5,48	5,69	0,21
F7.1 – Elaborated accessories	**3,11**	**3,78**	0,67*	**3,56**	**4,26**	0,70*	3,39	3,24	-0,15	4,11	3,93	-0,18
F7.2 – Basic accessories	**5,68**	**6,03**	0,35*	**6,07**	**6,43**	0,36*	5,86	5,73	-0,13	6,33	6,29	-0,04
F8 - Confort and space	5,29	5,50	0,20	5,78	6,06	0,28	5,31	5,39	0,08	5,91	6,03	0,12
F9 – Services and service of the dealership	5,28	5,47	0,19	**5,45**	**5,82**	0,38*	**5,13**	**5,51**	0,38*	5,63	5,77	0,14
F10.1 - Tradition and brand reputation	**5,07**	**6,03**	0,96*	**5,40**	**6,11**	0,71*	5,38	5,34	-0,04	5,86	5,90	0,03
F10.2 – Associations with the brand	**3,32**	**3,82**	0,51*	3,48	3,90	0,42	3,70	3,27	-0,43	3,88	3,64	-0,23
F11.1 – Media influence	**4,28**	**5,09**	0,81*	**4,27**	**5,14**	0,87*	4,60	4,45	-0,15	4,73	4,99	0,26
F11.2 – Groups of influence	**4,18**	**4,83**	0,65*	4,09	4,44	0,35	**4,15**	**4,58**	0,43*	**4,10**	**4,57**	0,47 *
F12 – Environmental impact	5,14	5,49	0,35	5,39	5,64	0,24	5,13	5,35	0,21	5,45	5,67	0,22
F13 – Resale	**5,44**	**6,36**	0,92*	**5,29**	**6,39**	1,10*	5,60	5,82	0,22	5,88	6,18	0,30

Source: Research data.

Table 4: Test t para to verify the difference in the importance of the attributes isolating the variable Country of residence in order to interact with the variable Sex and Usage state of the car

Attributes												
	Male	Female	≠	Male	Female	≠	Used	New	≠	Used	New	≠
F1.1 – Driveability and performance	5,54	5,42	-0,12	5,95	5,88	-0,07	5,41	5,65	0,24	**5,74**	**6,00**	0,26*
F1.2 – Resistance	**4,74**	**5,26**	0,52*	5,54	5,65	0,11	4,94	5,17	0,23	5,45	5,68	0,23
F2 – Service network	5,48	5,54	0,07	6,22	6,45	0,23	5,46	5,63	0,17	6,23	6,39	0,16
F3 – Maintenance	5,55	5,73	0,18	5,77	6,01	0,23	5,62	5,72	0,10	5,93	5,88	-0,05
F4 – Appearance	**5,48**	**5,10**	-0,38*	5,66	5,51	-0,15	5,19	5,53	0,34	**5,24**	**5,76**	0,52*
F5 – Security	**5,15**	**5,49**	0,33*	5,65	5,64	-0,01	**5,20**	**5,62**	0,42*	**5,23**	**5,86**	0,63*
F6 – Payment price	5,09	5,38	0,29	**5,45**	**5,79**	0,34*	5,19	5,38	0,20	5,52	5,68	0,16
F7.1-Expensive accessory	3,27	3,21	-0,06	4,27	3,92	-0,35	**3,11**	**3,56**	0,45*	3,78	4,26	0,48
F7.2-Common accessory	5,85	5,73	-0,12	6,35	6,24	-0,10	**5,68**	**6,07**	0,38*	**6,03**	**6,43**	0,40*
F8 - Confort and space	5,38	5,48	0,10	5,84	5,88	0,04	**5,29**	**5,78**	0,48*	**5,50**	**6,06**	0,56*
F9 – Services and service of the dealership	5,20	5,45	0,24	5,56	5,83	0,26	5,28	5,45	0,17	5,47	5,82	0,35
F10.1 - Tradition and brand reputation	5,29	5,05	-0,24	5,98	6,18	0,20	5,07	5,40	0,33	6,03	6,11	0,08
F10.2 – Brand's social status	**3,60**	**3,13**	-0,47*	3,99	3,77	-0,22	3,32	3,48	0,16	3,82	3,90	0,08
F11.1 – Media influence	4,35	4,21	-0,14	5,02	5,22	0,20	4,28	4,27	0,00	5,09	5,14	0,06
F11.2 – Groups of influence	**3,94**	**4,37**	0,43*	**4,33**	**4,80**	0,47*	4,18	4,09	-0,09	4,83	4,44	-0,39
F12 – Environmental impact	5,07	5,35	0,28	5,53	5,64	0,11	5,14	5,39	0,25	5,49	5,64	0,14
F13 – Resale	5,27	5,52	0,25	6,27	6,49	0,22	5,44	5,29	-0,15	6,36	6,39	0,03

Source: Research data.

Table 5: Summary of the tested hypotheses

Construct	Country of residence	Sex	Usage state	Country of residence x Sex	Country of residence x Usage state	Sex x Usage state	Country of residence x Sex x Usage state
F1.1 – Driveability and performance	Accepted	Rejected	Accepted	Rejected	Rejected	Accepted	-
F1.2 – Resistance	Accepted	Accepted	Accepted	Accepted	Rejected	Accepted	-
F2 – Service network	Accepted	Rejected	Accepted	Rejected	Rejected	Rejected	-
F3 – Maintenance costs	Accepted	Rejected	Rejected	Rejected	Rejected	Rejected	-
F4 – Appearance	Accepted	Accepted	Accepted	Accepted	Accepted	Rejected	-
F5 – Security	Accepted	Rejected	Accepted	Accepted	Rejected	Rejected	-
F6 – Price/payment conditions	Accepted	Accepted	Accepted	Accepted	Rejected	Accepted	-
F7.1 – Elaborated accessories	Accepted	Rejected	Accepted	Rejected	Accepted	Rejected	-
F7.2 – Basic accessories	Accepted	Rejected	Accepted	Rejected	Rejected	Rejected	-
F8 - Confort and space	Accepted	Rejected	Accepted	Rejected	Rejected	Rejected	-
F9 – Services and service of the dealership	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted	-
F10.1 - Tradition and brand reputation	Accepted	Rejected	Accepted	Accepted	Rejected	Rejected	-
F10.2 – Brand associations	Accepted	Accepted	Rejected	Accepted	Accepted	Rejected	-
F11.1 – Media influence	Accepted	Rejected	Accepted	Accepted	Rejected	Accepted	-
F11.2 – Groups of influence	Accepted	Accepted	Rejected	Accepted	Rejected	Rejected	-
F12 – Environmental impact	Accepted	Rejected	Accepted	Accepted	Rejected	Rejected	-
F13 – Resale	Accepted	Rejected	Accepted	Rejected	Rejected	Accepted	-

Source: Research data.

Observations: The hypotheses were tested by t tests based on a 1% level of significance. The hypotheses about the interaction between the three independent variables (Country of residence x Sex x Usage state) could not be used as it would only be possible with the MANOVA.