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# Willingness to Pay in a Differentiated Private-Label Setting

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## **ABSTRACT**

**Title:** Willingness to Pay in a Differentiated Private-Label Setting

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Private-label has been emerging as a trend in consumer-packaged goods throughout the years. This is the outcome of the increasing demand for products with similar characteristics to the national brands at lower prices. As a consequence, retailers are facing a more competitive environment and therefore need to improve their positioning by offering a more complete product portfolio, targeting different consumer needs.

This dissertation studies the impact of the three-tiered private-label portfolio strategy, consisting of economy, standard and premium stock-keeping units (SKUs), on consumer's willingness to pay. Moreover, the mediator role of both perceived quality and brand image is analyzed through a serial mediation model.

The experimental study is focused on the olive oil product category of Continente, a Portuguese food retailer. Respondents were exposed to one of the three SKUs and asked questions regarding perceived quality, brand image and willingness to pay.

The findings of this research indicate no direct effect of the private-label tier on consumers' willingness to pay. Nonetheless, perceived quality is identified as a complete mediator of the relationship between these two variables. On a complementary note, brand image does not have a significant impact on the dependent variable, willingness to pay.

**Keywords:** private-label, perceived quality, brand image, willingness to pay

## SUMÁRIO

**Título:** Disponibilidade para Pagar num Contexto Diferenciado de Marca Própria

**Autor:** Maria Teresa Matos

Ao longo dos últimos anos, as marcas próprias têm apresentado uma tendência de crescimento nos bens de consumo embalados. Este é o resultado de uma procura acrescida, por parte dos consumidores, de produtos com características semelhantes às marcas nacionais a preços reduzidos. Por conseguinte, o cenário competitivo tem vindo a intensificar-se, o que requer um melhor posicionamento por parte dos retalhistas. O principal objetivo consiste em oferecer um portfolio de produtos mais completo, com diferentes níveis, para diferentes necessidades dos consumidores.

Esta dissertação estuda o impacto dos três níveis de marca própria, nomeadamente económico, standard e premium, na disponibilidade do consumidor para pagar. Para complementar a análise, os papéis da perceção de qualidade e da imagem da marca, como mediadores desta relação, são também incluídos neste estudo, através de um modelo de mediação em série.

O estudo experimental investiga o efeito dos três níveis de marca própria no Continente, retalhista português, na categoria de produto de azeite. Os inquiridos foram expostos a um dos três estímulos, É Continente, Continente ou Continente Seleção, e responderam a questões relacionadas com a perceção de qualidade, imagem de marca e disponibilidade a pagar pelo produto.

Os resultados deste estudo indicam que não existe um efeito direto dos diferentes níveis das marcas brancas na disponibilidade do consumidor para pagar. No entanto, a qualidade percecionada é identificada como um mediador completo da relação entre as duas variáveis em estudo, enquanto a imagem da marca não apresenta resultados significativos de impacto na variável dependente.

**Palavras-Chave:** marca própria, perceção de qualidade, imagem de marca, disponibilidade para pagar

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## **LIST OF ABBREVIATIONS**

BI	Brand Image
CPG	Consumer-Packaged Goods
PL	Private-Label
PQ	Perceived Quality
SKU	Stock Keeping Unit
WTP	Willingness to Pay

## **CHAPTER 1: INTRODUCTION**

### **1.1. Background**

Private-label (PL) is a worldwide trend, particularly in consumer-packaged goods (CPG), reporting an increasing market share (Ailawadi et al., 2008). The Western Europe region presents the highest level of private-label development (Geysken, Gielens & Gijbrecchts, 2010) and, as a consequence, retailers need to constantly adapt their branding strategies in order to succeed (Ailawadi et al., 2008).

Consumers are increasingly searching for products with similar characteristics to the ones from national brands at lower prices (McKinsey & Company, 2021). Therefore, to take advantage of this trend, retailers have developed a private-label for almost every product category (Kumar & Steenkamp, 2007). In addition, some retailers have developed more than one stock-keeping unit (SKU) for each product category to better target different consumer preferences.

The three-tiered private-label portfolio strategy is gaining interest around the world. It consists of developing three tiers, economy, standard and premium tier, which differ in terms of quality presenting a low, standard and high level, respectively (Geysken et al., 2010). Consequently, the increasingly competitive environment faced by retailers requires imperative research on how willingness to pay differs between the three tiers so that pricing strategies and consequent demand for the products attains the highest level.

However, previous research has shown that the introduction of economy and premium PL might lead to the cannibalization of the standard tier. More specifically, the economy tier cannibalizes the standard, and the introduction of the premium tier can have the same effect on both standard and economy PL (Geysken et al., 2010).

Taking this into account, it is crucial for retailers to understand consumers' willingness to pay for the different tiers in order to strategically place themselves in the market and minimize this effect.

### **1.2. Problem Statement**

The scope of this research is to understand how different quality tiers of private-label impact the willingness to pay of consumers, in the specific case of the olive oil product category.

Simultaneously, it also proposes to analyze whether perceived quality and brand image mediate the relationship between the two variables.

The problem statement for this research could be summarized as follows:

The impact of different private-label tiers on consumers' willingness to pay:

The mediator effect of perceived quality and brand image.

This problem statement substantiates itself in the following research questions:

**RQ1:** How do different private-label tiers impact consumer's willingness to pay?

**RQ2:** How does the perceived quality of the three private-label tiers influence consumer's willingness to pay?

**RQ3:** Do distinct private-label tiers have a positive impact on consumer's brand image?

### **1.3. Relevance**

Private-label have seen significant growth in the last decades in several countries and different product categories (Gabrielsen & Sørsgard, 2007).

According to McKinsey & Company, during the COVID-19 crisis, many national brands of CPG were not available and, consequently, consumers started to increasingly buy private-label goods instead of the usually preferred brands and have continued to do so afterward (McKinsey & Company, 2021). The high availability of private-label products combined with a lower price made these products more attractive to consumers during the period of the public health crisis. This shift in consumer preferences towards private-label represents a good opportunity for retailers due to the higher unit margins associated with these products (Pauwels & Srinivasan, 2004). Besides that, high-quality private-label also represent a driver of customer loyalty for retailers (McKinsey & Company, 2021).

A study on the differences in consumers' willingness to pay for the three tiers of private-label – economy, standard and premium – and how retailers should position themselves in this regard are, ultimately, what I intend to achieve with this dissertation.

From a managerial perspective, with the increasing market share of private-label brands, retailers must understand whether consumers have different perceptions of the three PL tiers.

In the particular case of olive oil, the retailer under study does not have on its portfolio the economy tier and this study wants to explore whether it would be beneficial to introduce it or not. Moreover, by analyzing the differences in consumers' willingness to pay for the three tiers, the retailer can better understand whether this new product development would be profitable or not. Additionally, previous research has shown that retailers are able to earn higher unit margins on national brands in categories in which the share of private-label is high (Ailawadi et al., 2004). This finding strongly reinforces the relevance of this study for the food retail industry.

Academically, there is already considerable research on private-label brands. Nonetheless, most research focuses only on the standard and premium PL, whereas this study aims to expand the understanding of the topic to the three tiers. Moreover, most research is focused on the effect of introducing economy PL on brand choice and how the private-label impact store loyalty. The present dissertation contributes with knowledge regarding consumers' willingness to pay for the different tiers. Besides that, particular attention is given to the relationship between PL tiers and willingness to pay, and how it can be mediated by perceived quality and brand image, research that has not been developed yet.

#### **1.4. Research Methods**

The study of the subject at hand was conducted via the collection of primary data. Firstly, a detailed analysis of existing literature was performed mainly through top journals, academic articles and market research reports. Thereafter, the literature review was the foundation that enabled the researcher to hypothesize the relationships between the variables under study and the identification of the mediation effects.

The second research method used was a focus group to get insights into consumer perceptions of private-label of different Portuguese retailers and the quality tiers available in the market. Moreover, it eliminated the research bias by validating the retailer and product category choices and also enabled the stimuli validation to be used in the online survey.

Lastly, primary data was obtained through an online survey conducted via *Qualtrics* to infer about the validity of the hypotheses developed in Chapter 2 – Literature Review. The study's population of interest was anyone who had ever bought Olive Oil at any point in time.

## **1.5. Dissertation Outline**

The first chapter outlines the research problem at hand, the main goal and the research questions of this study. Moreover, managerial and academic relevance are discussed together with a description of the research method to be used in this dissertation.

The following chapter – Literature Review – highlights the main findings from previous research on the several variables under study together with the formulation of hypotheses and the resulting conceptual framework.

In the third chapter, a detailed depiction of the research approach used in this survey is described. More specifically, the data collection process is elucidated and a detailed depiction of the online questionnaire is made.

Afterward, the analysis of the results obtained in the online survey is described in Chapter 5 – Results and Discussions – and the last chapter presents the main conclusions, academic and managerial implications, limitations of the study and suggestions for future analysis.

## **CHAPTER 2: LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK**

This chapter presents a literature review on the subjects related to the main research questions and research purpose. The concepts were explored using previous studies and empirical evidence from several top journals and academic articles. Thereafter, this chapter presents the hypotheses and the conceptual framework.

### **2.1. Private-label**

Private-labels, also known as store brands, are owned and sold exclusively by retailers (Sethuraman & Cole, 1999).

When retailers introduced private-label into their product portfolio, the common practice was to offer a standard PL. However, some retailers started to introduce two additional quality tiers into their portfolios, namely economy and premium tiers. Hence, a portfolio with three tiers was categorized into economy, standard and premium tiers (Ailawadi & Keller, 2004).

The aforementioned tiers of private-label entail some key differences which must be clarified. The economy tier, also known as value or budget, presents the greatest reduction on more expensive ingredients with the main goal of making an efficient cost reduction. This tier is vertically differentiated from the standard tier in terms of quality and can be classified as an entry-level option. Due to this reason, previous research has shown that economy PL offers lower margins to retailers when compared to the standard tier. This is pointed out as one of the reasons why retailers choose not to introduce this budget tier into their portfolio (Ter Braak et al., 2013).

The products which try to replicate and match the quality of manufacturer brands, standard PL, are positioned as an intermediate quality option (Kumar & Steenkamp, 2007). Lastly, premium PL offers more quality than standard private-label, being vertically differentiated from them, but are also horizontally differentiated in the sense that they offer features that cannot be found in the two inferior tiers. Additionally, previous research has shown that premium private-label offer higher margins to retailers when compared to the standard tier (Ter Braak et al., 2013).

Regarding price positioning, premium PL have higher prices than the standard ones, and the same reasoning can be applied when comparing the price of a standard with an economy tier.

When integrating economy or premium tiers into their portfolios, retailers might consider that a cannibalization effect may occur reducing the sales of the existing private-label offering. More specifically, previous research has suggested that retailers should reduce similarities between the three SKUs and position them in different places on the shelf to avoid a direct comparison between the three of them (Geyskens et al., 2010).

Additionally, according to the compromising effect, the introduction of an economy tier in portfolios with the two superior tiers will result in a higher probability choice for the standard SKU (Parducci, 1974). This fact can be associated with an increased perceived quality of the standard tier when introducing the economy tier in the consideration set of consumers (Nowlis & Simonson, 2000).

Moreover, this integration has also a negative impact on the perceived difference in quality between the standard and premium tiers. On a more positive note, this portfolio integration strategy leads to similar quality perceptions between the national brands and the two superior tiers of private labels (Nowlis & Simonson, 2000).

## **2.2. Brand Image**

Brand image plays a key strategic role in marketing management (Keller, 1993). Strong communication of the brand image ensures that the company stands out when compared to the other competitors in the market which leads to a competitive advantage position (Reynolds & Gutman, 1984). Prior research considers brand image as a consequence of the interpretation of brand identity by the stakeholders (Keller, 1993).

Many researchers have put a focus on the study of brand image, sometimes also known as brand knowledge or brand description. Brand image can be defined as the “perceptions about a brand as reflected by the brand associations held in consumer memory” (Keller, 1993). Similar definitions were presented by other researchers. According to Aaker (1991), brand image is a structured set of associations that conveys in a meaningful way how consumers perceive the brand (Aaker, 1996). The definition provided by Laidler-Kylander et al. (2007) almost one decade after is still in line with the one provided by Aaker (1991). This researcher has characterized brand image as the perception of all stakeholders involved in activities with the firm and not only the consumer. Moreover, this concept has been classified as subjective and perceptual in the sense that consumer interpretation could be either reasoned or emotional (Dobni & Zinkhan, 1990).

Previous research has studied the process of building a strong brand image for consumer-packaged goods, being defined as a time-consuming and costly process. Nonetheless, building a strong brand image is pointed out as a key milestone to achieve brand loyalty (Kayaman & Arasli, 2007).

### **2.3. Perceived Quality**

The quality of a product is one of the main determinants of brand market share (Richardson et al., 1994), customer value and satisfaction (Day, 1990; Kotler, 1994; Porter, 1980).

As a result, offering products with high quality leads to a strong competitive advantage aligned with a positive effect on the profitability of the company (Ophuis & Van Trijp, 1995; Porter, 1980).

Several researchers have emphasized that quality can be classified into two distinct categories: objective quality and perceived quality (Tsiotsou, 2006; Zeithaml et al., 1988).

Objective quality refers to the proven superiority or excellence of products or services, which needs to be measurable and verifiable (Dodds & Monroe, 1985). Perceived quality has been adopted in the marketing field and can be defined as the “consumer’s judgment about a product’s overall excellence or superiority” (Zeithaml, 1988). Further research has complemented this definition by adding up that when customers disclose their perceived quality of the product, a comparison with available alternatives in the market is made (Aaker, 1991).

The concept of perceived quality is defined as complex, as it is challenging for consumers to comprehensively evaluate all its aspects when assessing a product. As a result, consumers appraise perceived quality based on the concept of indirect quality indicators (Ophuis & van Trijp, 1995).

The quality perception process is composed of two distinct stages. Firstly, consumers select quality indicators from a range of product-related attributes. Subsequently, the judgment on the product’s perceived quality is built by compiling all the individual evaluations (Olson & Jacoby, 1972).

Jacoby and Olson (1972) developed the Cue Utilization Theory according to which consumers use several cues to assess the quality of a good or service. While quality cues can be observed

prior to consumption or usage, quality attributes are associated with the benefits one might obtain with the usage of the product.

The categorization of quality cues is based on whether they are intrinsic or extrinsic (Jacoby et al., 1971). Indicators that cannot be changed without changing the physical characteristics of the product such as color and shape are named intrinsic cues. The extrinsic cues, namely brand name and price, are related to the product but can be changed without changing the physical product (Ophuis & Van Trijp, 1995). The importance assigned to each cue depends on the individual preferences of the consumer.

#### **2.4. Willingness to Pay**

The willingness to pay (WTP) or reservation price is defined as the maximum amount of money a consumer is willing to pay for a given product or service (Kalish et al., 1991). To define optimal pricing strategies and forecast product demand, companies need to accurately measure consumers' WTP (Kalish et al., 1991).

However, the method adopted to define consumers' WTP is not easily defined as companies are not able to directly observe it. Consequently, it is of extreme importance for managers to understand which are the main drivers of WTP and what makes it differ from one product to another. Moreover, an adequate understanding of the pricing strategy of the main competitors is crucial to successfully setting the price of a product (Breidert et al., 2006). When measuring consumers' WTP, two main categories were identified, hypothetical and actual (Miller et al., 2011).

Moreover, by determining the WTP of customers for a product, both branding strategy and brand performance can be optimized (Thanasuta & Chiaravutthi, 2018). When the perceived value of a brand is higher, consumers are willing to pay a price premium for the product (Keller, 1993). Consequently, the difference in consumer WTP for one brand over another is a good measure of Brand Equity (Aaker, 1996).

#### **2.5. Private-label and Perceived Quality**

The three PL tiers are vertically differentiated from each other, meaning that they differ in terms of quality. Economy private-label offers acceptable quality at the lowest possible price, being the low-quality tier. The standard private-label is classified as mid-quality, and the premium

private-label is positioned as top-quality tier. Therefore, one may conclude that the highest the quality tier, the greatest is the level of perceived quality (Geyskens et al., 2010).

The difference in perceived quality between the tiers is impacted by the product portfolio's composition of the category. When retailers offer a single tier, standard or premium, the perceived quality is lower than when both tiers are in the consideration set of consumers (Palmeira & Thomas, 2011).

Moreover, research on portfolios with two tiers revealed that offering a standard private-label improves the perceived quality of the premium tier. On the other hand, there is no evidence of the contrary. The quality perception of the standard tier is not affected by the existence of a premium offer (Palmeira & Thomas, 2011).

When the portfolio is composed of the three quality tiers, the literature supports that the economy tier has a positive impact on the perceived quality of the standard tier. However, the premium tier has a negative impact on the perceived quality of the standard one. Nonetheless, the positive impact offsets the negative. Moreover, the introduction of an economy private-label decreases the difference in perceived quality between the standard and premium tiers. If a portfolio is composed of three tiers, the similarity between the standard private-label and national brand is higher (Geyskens et al., 2010).

Hence, the hypothesis is predicted:

*H<sub>1</sub>: The private-label quality tier has a positive impact on consumer's perceived quality of the product.*

*H<sub>1a</sub>): Perceived quality is higher for a premium private-label than for a standard private-label.*

*H<sub>1b</sub>): Perceived quality is higher for a standard private-label than for an economy private-label.*

## **2.6. Private-Label and Brand Image**

Consumers evaluate the different private-label based on extrinsic attributes such as price and brand name and intrinsic attributes such as the ingredients and country of origin of the product.

To accurately evaluate the brand image, both types of attributes are used (Shimp & Bearden, 1982).

Previous research has shown that when the premium quality tier is part of the portfolio, the brand image is improved together with brand recognition. For consumers looking for products with lower prices, the strategy of introducing an economy product can be beneficial to improve brand loyalty, instead of having just a standard tier.

Moreover, research has shown that portfolios composed of three tiers intensified the effect of private-label image on brand loyalty. The effect of brand awareness and associations on private-label loyalty is higher in retailers offering three tiers than in the ones with a portfolio only containing a standard SKU (Ter Braak et al., 2013).

*H<sub>2</sub>: The private-label quality tier will have an impact on consumer's brand image of the product.*

*H<sub>2a</sub>): Brand image is higher for a premium private-label than for a standard private-label.*

*H<sub>2b</sub>): Brand image is higher for a standard private-label than for an economy private-label.*

## **2.7. Perceived Quality and Brand Image**

Previous research has put a considerable focus on the interaction between perceived quality and brand image due to its high relevance for managerial purposes.

Most researchers have concluded that perceived quality has a significant positive effect on brand image (Alhaddad 2015; Chen & Tseng, 2010; Kayaman & Arasli, 2007; Teck Ming, 2011). On a more concrete note, perceived quality is identified as one of the many inputs of brand image (Kirmani & Zeithaml, 1993).

This is a valuable insight into the marketing field since it demonstrates the importance of concentrating efforts on perceived quality with the ultimate goal of improving brand image (Alhaddad, 2015). Furthermore, a study demonstrated that if customers have a high perceived quality of a product, a good brand image will be held in their memories (Chen & Tseng, 2010).

Nonetheless, few researchers have argued the contrary, meaning that the relationship between the two concepts was exactly the opposite and that a higher brand image would lead to a higher perceived quality (Jacoby et al., 1971; Severi & Ling, 2013). Moreover, studies conducted afterward mentioned that brand image is used by consumers in order to formulate quality perceptions of the products (Armstrong & Kotler, 1996; Richardson et al., 1994). The researchers who defended this view argued that brand image reflects a higher level of complexity than perceived quality.

This dissertation will analyze the most consistent and consensual approach among researchers in recent years.

Hence, the hypothesis is predicted:

*H<sub>3</sub>: Perceived Quality has a positive impact on brand image.*

## **2.8. Private-Label and Willingness to Pay**

The consumers' willingness to pay for private-label is a reflection of the brand value and of the capability of being successful in the market (Thanasuta & Chiaravutthi, 2018). More specifically, previous research highlighted the importance of having low-price competition between different brands to succeed and attain higher sales (Raju et al., 1995).

The difference in consumers' willingness to pay for two products from different quality tiers is related to the gap in perceived quality. More specifically, the price premium between national brands and private-label increases as the perceived quality gap increases (Sethuraman & Cole, 1999). Hence, similar reasoning can be applied to the three PLs tiers.

When setting the price of PLs, retailers might adopt different strategies, by defining a lower, similar or premium price compared to the national brands (Hyman et al., 2010). As previous research has concluded that the optimal pricing should be adjusted considering the consumer's perceived quality of the private-label (Deleersnyder et al., 2007), one may conclude that a superior tier is associated with a higher WTP.

*H<sub>4</sub>: The private-label quality tier will have a positive impact on consumer's willingness to pay for the product.*

*H<sub>4a</sub>): Consumer's willingness to pay is higher for a premium private-label than for a standard private-label.*

*H<sub>4b</sub>): Consumer's willingness to pay is higher for a standard private-label than for an economy private-label.*

## **2.9. Perceived Quality and Willingness to Pay**

The perceived quality of a product is found to have a positive impact on the willingness to pay (Sethuraman & Cole, 1999; Steenkamp et al., 2010; Steenkamp & van Trijp, 1996; Thanasuta & Metharom, 2015).

On a more concrete note, perceived quality is a precursor of the willingness to pay a price premium for a brand (Netemeyer et al., 2004). Moreover, it plays a key role in consumers' purchase intentions (Washburn & Plank, 2002) and actual brand purchases (Le Gall-Ely, 2009).

A retailer can differentiate itself and motivate consumers to pay more for its products by increasing the perceived quality of its products. Nonetheless, literature shows that perceived quality by itself only explains a small percentage of the price that consumers are willing to pay for consumer-packaged goods (Sethuraman, 2003). Previous research has shown that some reasons such as imitation are making perceived quality lose its strength as a competitive tool (Gerzema & Lebar, 2008) and, consequently, it cannot sustain by itself a competitive advantage.

Hence, the hypothesis is predicted:

*H<sub>5</sub>: Perceived Quality will have a positive impact on customers' willingness to pay.*

## **2.10. Brand Image and Willingness to Pay**

Previous research has shown that brand image has an impact on consumers' preferences and purchase intentions which will ultimately have an impact on consumers' willingness to pay (Keller, 1993). More specifically, social image, home country origin and uniqueness are pointed out as three brand image dimensions that influence consumer's willingness to pay. As it was suggested by Porter (1985), uniqueness and consequently differentiation are identified as key when it comes to price competition.

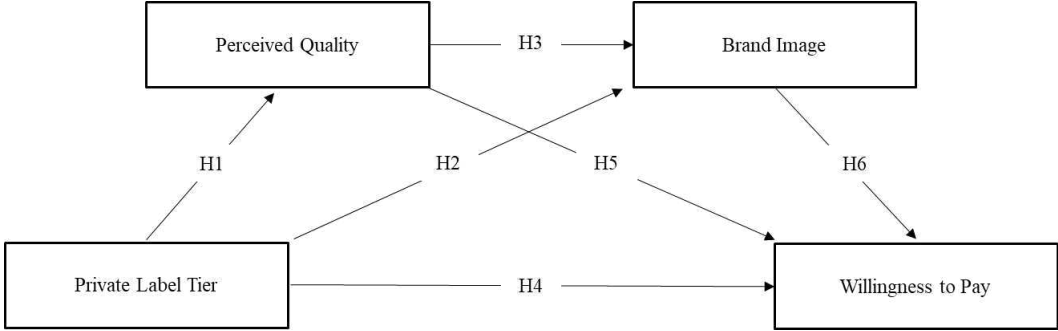
According to brand equity literature, strong brands can access more points in customers' minds, making them less sensitive to competition and less price sensitive (Keller, 2001).

Therefore, with the aim of reducing the gap between private-label and national brands, retailers should put focus on dimensions such as social image and uniqueness.

Hence, the hypothesis is predicted:

*H<sub>6</sub>: Brand Image will have a positive impact on customers' willingness to pay.*

**2.11. Conceptual Framework**



**Figure 1.** Conceptual Framework

## **CHAPTER 3: METHODOLOGY**

This chapter presents in detail the research approach used to study the subject at hand. The main goal of this chapter is to provide a comprehensive depiction of the methods used to collect primary data, which was then used to infer about the validity of the hypotheses formulated in Chapter 2.

### **3.1. Research Approach**

The main goal of this dissertation is to explore the impact of different tiers of private-label on consumers' willingness to pay. To answer the research questions formulated in Chapter 1, an appropriate research approach (Figure 2) was developed.

In order to clearly define the problem and the underlying research questions, an analysis of the existing literature was conducted. By performing an extensive literature review on the concepts, one was able to understand how the relationship between the independent and dependent variables is described and which other variables could serve as mediators of this relationship. Moreover, gaps in the literature were identified with the main goal of being explored in this dissertation. Subsequently, a conceptual model was developed to assess all significant associations between the constructs.

To develop a proper response to the research question, the conceptual model was transformed into an operational one. Hence, this process implied the usage of exploratory and explanatory research methods. The exploratory methods encompass the review of existing literature, clarify problems and formulate hypotheses, while explanatory research was used to establish a cause-effect relationship between the variables (Burns et al., 2017).

After formulating the hypotheses, the next phase was the choice of the retailer and the product category to be studied. Nonetheless, it was necessary to validate this further. Therefore, a focus group was carried out to explore this subject and also to get more insights on different topics. The researcher was able to get insights on consumer habits, preferences of national brands versus private-label, perceptions over different private-label and also consumer preferences on the product category to be studied, olive oil.

Since the olive oil category in Continente already had two out of the three tiers of private-label, it was necessary to develop a stimuli for the economy tier, and validate it with the participants. Consequently, the focus group was a method to present different stimuli to the participants and

understand which one would better represent the economy tier of the private-label and would be correctly interpreted in the main survey.

Lastly, primary data was collected via an online survey, and statistical analysis was conducted to infer about the validity of the hypotheses formulated and to answer the research questions.



**Figure 2.** Research Approach

### **3.2. Primary Data**

Primary Data was collected to provide a response to the three research questions formulated and to infer the validity of the hypotheses formulated in Chapter 2.

As previously mentioned, the primary data collected was both qualitative and quantitative. Qualitative research was made through a focus group to better understand consumer perception of different retailers' private-label and to validate the stimuli creation for the economy tier. Afterward, quantitative data was collected through an online questionnaire.

#### **3.2.1. Retailer and Product Category Choice**

The Sonae MC holds the top position in the food retail industry in Portugal (Sonae MC, 2022). In 2017, the group was already the top player in the market with a market share of approximately 22% (Sonae MC, 2017). This position is sustained by the development of pioneering concepts and channels while anticipating consumer trends.

The hypermarket Continente was chosen based on the high consumer familiarity in Portugal that was confirmed in the focus group. Additionally, the private-label of Continente accounts for 44% of the overall sales with approximately 750M euros in the food area. This represents a 20% growth when compared to the two previous years (Sonae MC, 2022).

Besides that, Continente offers three quality tiers of private-label in the food area, É Continente, Continente and Continente Seleção which are respectively associated by the retailer to the economy, standard and premium tiers identified in the literature (Sonae MC, 2018). This was perceived as an opportunity to explore the subject at hand.

The chosen product category for this study, Olive Oil, is of extreme importance for the Portuguese economy as the country is the fourth-largest producer within the European Union (European Commission, 2023). Besides that, is one of the most common products in the basket of Portuguese households, and its consumption has been increasing throughout the years, as it has been recognized as highly beneficial for health (GPP, 2020). Moreover, Continente already has a premium and a standard tier for this product category which enhances the importance of discussing whether it would be profitable for the retailer to introduce a low-quality tier.

### **3.2.2. Focus Group**

A focus group was conducted before launching the online survey to get insights on consumer habits and preferences, as well as to support and validate the retailer and product category choices. Additionally, the stimuli representing the economy tier to be used in the online survey was also approved.

#### **3.2.2.1. Data Collection**

The focus group was conducted via Microsoft Teams, an online platform, with eight Portuguese participants, from different age groups and occupations. It was divided into four parts and a short explanation was given at the beginning of the different sections (Appendix 1).

In the first part – Warm Up and Introduction – a short introduction explaining the main purpose of the study and the basic rules was provided and the participants got the opportunity to introduce themselves.

The second part opened the discussion on consumer habits and preferences regarding supermarkets. Afterward, participants debated their proneness to buy specific product categories from private-label, and for which ones PL were not in their consideration set.

In the fourth part, the discussion was focused on the product category to be studied in the survey. Consumers were encouraged to share the brands they usually bought olive oil from and identify characteristics they value the most in this product. Lastly, to test and identify the appropriate stimulus for the economy tier, participants shared their opinions about three stimuli previously designed and suggested some adjustments on the final one.

### 3.2.2.2 Results

The focus group revealed a high consumer familiarity with Continente and also with the private-label available in this supermarket. Moreover, a clear distinction in terms of quality between different private-label was identified by all participants.

As in Continente, only the premium tier, Continente Seleção (Figure 3), and the standard tier, Continente (Figure 4), were available in the olive oil product category, it was necessary to develop a stimulus for the economy tier, É Continente. Therefore, insights on the quality perception of the two tiers available in the market were gathered in the focus group and participants revealed which attributes they associate with the most premium products. Moreover, when presented with the two tiers available in the retailer, participants identified Continente Seleção as superior when compared to Continente.

To decide on the stimulus to be presented in the survey for the economy tier, three stimuli previously designed for É Continente were presented to the participants. This stimulus was identified as the one with inferior quality and the discussion led to some adjustments to the final stimuli in terms of the location of the logo on the label as well as in the bottle to present such a solution (Figure 5).



**Figure 3.** Premium Private-Label (Continente Seleção)



**Figure 4.** Standard Private-Label (Continente)



**Figure 5.** Economy Private-Label (É Continente)

### **3.2.3. Online Survey**

To infer about the validity of the hypotheses formulated in Chapter 2 – Literature Review, and to provide appropriate answers for the problem statement and research questions, an online survey was conducted.

### **3.2.3.1. Data Collection**

The online survey conducted through *Qualtrics* was launched on April 24<sup>th</sup> and responses were collected until May 2<sup>nd</sup> of the current year, 2023. This method is associated with a high speed of data collection due to access to a large audience and no associated costs (Healey et al., 2002). Nonetheless, limitations such as the distribution of the survey only to people prone to answer it online should be also acknowledged (Poynter, 2010).

Before launching the main survey, a pilot survey was conducted with five participants to ensure that all questions, content and functionality were clear. Subsequently, necessary changes were applied according to the participants' suggestions. More specifically, one of the manipulation questions was not clear for some of the participants in the pilot test, both on the Portuguese and English versions, which required adjustments in the response options. Additionally, a timer was added to the stimuli presentation section to ensure an appropriate interpretation of it.

Afterward, the survey was launched. The target sample was anyone familiar with the product category, olive oil, and that has purchased this product at least once at any point in time to assure familiarity with the stimulus.

Albeit a total of 176 responses had been gathered, 40 of them were discarded from the analysis due to ineligibility of respondents. The process of data cleaning is further explained in Chapter 4 – Results and Discussion.

### **3.2.3.2. Research Design**

The data collection in the main survey followed a non-probability sampling technique. This means that the researcher could not determine the probability of each element being included in the sample. Hence, for this research, the respondents were chosen based on availability and convenience to answer the survey (Kothari, 2004). Therefore, one cannot generalize the results to the population.

The survey was composed of eight blocks. The first one consisted of a small introduction to the study, in which participants were informed that there were no correct nor incorrect answers to the questions and that confidentiality and anonymity of the answers were assured. On the second block, two screening questions were asked to ensure that respondents were eligible to answer the questionnaire. These questions' main objective was to understand whether respondents have ever purchased olive oil and what was, on average, the purchase frequency

per year. The respondents who answered negatively to the first question, meaning that they had never purchased olive oil, were considered as ineligible, and, consequently, were redirected to the end of the survey. Moreover, if participants revealed an annual purchasing frequency inferior to one, the same logic was applied.

In the following block, each participant was randomly exposed to one of the three stimuli. To guarantee that the respondent would correctly interpret the stimulus presented, a minimum of ten seconds was set for the observation of the product.

Each respondent was then presented with three different blocks of questions regarding perceived quality, brand image and willingness to pay. These three blocks of questions were presented to the respondents following the same order, independently of the stimulus they were exposed to. Moreover, an attention check question was included in the block of brand image in which the respondent was asked to select the *Strongly Agree* option.

In the subsequent section, respondents were asked three questions which were used as a manipulation check. The last block of the survey was compiled with demographic questions.

### 3.2.3.3. Measurement

After performing a review of relevant literature for scale items, the most suited measures for the study were selected (Table 1). In most cases, the constructs were directly retrieved from the literature while in some cases, some changes were necessary to better fit the subject of this dissertation. One might analyze the constructs, number of items, statements, scales, literature sources and the Cronbach's alpha used to build up the scales used in the survey in appendix 2.

**Table 1.** Operational Model

<b>Variable</b>	<b>Construct</b>	<b>Items</b>	<b>Scale</b>	<b>Reference</b>	<b>Cronbach's Alpha</b>
IV	Private-Label Tier	-	-	-	-
Mediator	Perceived Quality	4	7-point Likert scale	(Bao et al., 2011)	0.95
Mediator	Brand Image	6	7-point Likert scale	(Martínez & De Chernatony, 2004)	0.84
DV	Willingness to Pay	2	Interval Scale	(Marbeau, 1987)	N/A

#### **3.2.3.4. Data Analysis**

The data collected from the survey (Appendix 3) was analyzed using Statistical Package for the Social Science (SPSS), version 28.0.

Before proceeding with the inferential analysis, it was necessary to prepare and clean the data, a process comprised of several stages. First, a data cleaning stage which included the identification of non-eligible respondents and out-of-range responses was performed. Additionally, a collinearity diagnostic to test the correlations between the variables was conducted. Following this, constructs were created and a reliability test based on Cronbach's alpha was executed. Lastly, a manipulation check was conducted to verify whether respondents have correctly interpreted the stimuli.

Subsequently, the analysis proceeded and appropriate tests were conducted to infer about the validity of the hypotheses formulated.

Lastly, the PROCESS tool developed by Hayes was used to test the full model. As the statistical diagram is a serial multiple mediation model, with perceived quality and brand image serially mediating the relationship between the independent and dependent variables, model 6 was used (Hayes, 2018).

## **CHAPTER 4: RESULTS AND DISCUSSION**

This chapter aims to analyze the quantitative data collected through the online survey and deduce about the validity of the hypotheses previously formulated. Thereafter, the process of data cleaning is presented together with a descriptive analysis of the sample. Finally, the tests conducted for each hypothesis are described as well as the process to test the whole model.

### **4.1. Data Preparation**

#### **4.1.1. Data Cleaning**

Before starting to analyze the data, a preliminary step of data cleaning was required. Although 176 responses were collected in the online survey, 40 of them were excluded from the analysis.

Firstly, no missing values were identified since all questions had a force response requirement, but 14 participants were excluded from the data set due to the identification of identical IPs.

To access whether respondents were part of the target sample, two screening questions were included in the survey which resulted in the exclusion of 7 respondents. Two respondents revealed that they have never bought olive oil and five mentioned a purchasing frequency inferior to once per year. Lastly, the attention check included in the survey led to the elimination of 18 responses from the analysis, 8 from *É Continente*, 5 from *Continente* and 5 from *Continente Seleção*.

Additionally, before proceeding with further analysis, it was necessary to recode the fourth item of the perceived quality construct “This item is of very bad quality” since it was reversed.

#### **4.1.2. Outlier Analysis**

The detection of outliers that needed to be removed from the data set was carried out by means of calculating the Mahalanobis Distance. Therefore, one response from the “*Continente Seleção*” sample was considered an outlier since it did not meet the criteria ( $p > 0.001$ ) and was consequently removed from the data set. On the other two samples, no outliers were found being the lowest p-value on *É Continente* of  $p = 0.117$  and on *Continente* of  $p = 0.065$ .

### **4.1.3 Collinearity Diagnostics**

Multicollinearity occurs when there is a strong correlation between two or more predictors in a regression model and this may represent a problem for the analysis (Field, 2009). The results indicate that there is no evidence of multicollinearity among the variables since tolerance values are above 0.2, the VIF is close to 1 and the condition index is lower than 15 (Field, 2009). Considering these findings, the analysis may proceed without concern for issues related to collinearity.

### **4.1.4. Constructs Creation and Reliability**

Even though the constructs used in the survey were retrieved from previous research, it was necessary to conduct a reliability analysis to check for internal consistency. The criterion used to classify the reliability of the construct was based on the results of Cronbach's alpha test. Accordingly, the closer Cronbach's alpha is to 1, the more reliable the scale under usage is. Previous studies classified constructs with coefficients of at least 0.9 as excellent, while those with coefficients between 0.8 and 0.9 as good (Gliem & Gliem, 2003). Moreover, if the coefficient is less than 0.7, further analysis is required to check whether the alpha would be improved with the deletion of some items of the scale.

As one can analyze in the table, for the perceived quality construct, Cronbach's alpha in the three samples presented values above 0.7. The Cronbach's alpha for "Continente" is considered acceptable, and for both "É Continente" and "Continente Seleção" is classified as good.

For brand image, the coefficient only presented an acceptable result for "É Continente". For "Continente" and "Continente Seleção" it was lower than 0.7, which is considered the minimum acceptable criteria. However, when checking for improvement by deleting one of the items of the scale, such result was not significant and consequently no modifications were performed in the brand image construct.

Lastly, for willingness to pay, the Cronbach's alpha was lower than 0.7 and did not meet the acceptance criterion. Therefore, as in this dissertation the focus is on the maximum the consumer is willing to pay for the product, further analysis only considered the first item of the scale.

Consequently, the constructs were created as the simple average of the several items of the scale, for each one of the stimuli. Accordingly, the perceived quality construct was computed

as the mean of the four items and labeled PerceivedQuality\_1, PerceivedQuality\_2 and PerceivedQuality\_3. The brand image construct followed the same reasoning, with the six items of the scale for each of the stimuli, BrandImage\_1, BrandImage\_2 and BrandImage\_3. Lastly, for willingness to pay, only the first item of the scale was considered for further analysis and was labeled WTP\_1, WTP\_2, and WTP\_3.

**Table 2.** Constructs Reliability

Construct	Number of items	É Continte <i>n=40</i>	Continte <i>n=44</i>	Continte Seleção <i>n=52</i>	Total <i>n=136</i>
Perceived Quality	4	0.854	0.735	0.835	0.808
Brand Image	6	0.733	0.658	0.628	0.673
Willingness to Pay	2	0.480	0.652	0.657	0.587

A detailed analysis of the descriptives of the three variables, perceived quality, brand image and willingness to pay can be analyzed in appendix 4.

#### 4.1.5. Manipulation Check

In the study, the participants were randomly allocated to one of the three stimuli and therefore it is necessary to conduct a manipulation check to confirm if participants have correctly interpreted them.

Before proceeding with the analysis, a categorical variable with three levels, labeled PLTier, had to be created (1= É Continte; 2=Continte; 3= Continte Seleção).

In the survey, participants were asked to indicate, on a 7-point Likert scale, the level that better described their overall perception of the quality of the product they have previously seen from (1) Extremely Poor to (7) Extremely Good.

Therefore, a one-way ANOVA was conducted to determine whether the three tiers differed in terms of overall quality.

Firstly, the homoscedasticity assumption was verified since  $F(1,133) = 2.108, p > 0.05$ , which leads to the non-rejection of the null hypothesis ( $H_0$ : Equal population variances on the dependent variable). The overall quality ratings of the private-label presented a significant

difference,  $F(2,135) = 9.099, p < 0.05$ , and therefore one can reject the null hypothesis ( $H_0$ : There are no differences between the overall quality means of the three samples). As the homogeneity of variances was verified, the Tukey HSD was analyzed to check where the differences between the means of the three groups came from. However, significant differences were only encountered between É Continte and Continte. Between Continte and Continte Seleção, the difference in the means is not statistically significant.

Since ANOVA did not provide confirmation of the successful manipulation of the stimuli, further tests were performed to check whether the analysis could proceed with the three PL tiers. More specifically, independent-sample t-tests were conducted to examine whether significant differences between the private-label tiers existed on at least one of the variables under study.

As significant differences between the groups were encountered on at least one of the variables (Table 3), the analysis proceeded with the three quality tiers.

**Table 3.** Independent-Samples t-test

<b>Variable</b>	É Continte vs Continte	É Continte vs Continte Seleção	Continte vs Continte Seleção
Perceived Quality	***	***	-
Brand Image	*	-	-
Willingness to Pay	-	-	*

\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$

## 4.2. Sample Characterization

In the last section of the questionnaire, respondents answered some demographic questions which are crucial for drawing conclusions about the topic under study. The key demographic characteristics were analyzed by the stimulus shown to the respondent (Appendix 7.1). The analysis of the data reveals that the sample is non-probabilistic which implies that it is not representative of the population, a fact that should be acknowledged as a limitation of this study.

The sample is composed of 136 responses, from which 29.4% visualized the stimuli of É Continte, 32.4% of Continte and 38.2% of Continte Seleção.

Regarding gender, the total sample is mostly composed of female respondents (66.9%) being the male representativeness of 31.6%. Nonetheless, the gender distribution among the three samples is approximately the same.

Most participants are aged between 18-34 years old, with 49,3% of the participants from the 18-24 age group and 30,9% from the 25-34 age group. The representativeness of respondents under 18 and above 65 years old is low, with only 0.7% of respondents belonging to each of the groups.

Concerning nationality, the sample is mostly composed of Portuguese participants (89%). There is a small representativeness of 3.7% and 2.2% of Brazilian and Italian respondents, respectively, while 5.1% are from other nationalities. Concerning the level of education, the sample is composed of highly educated respondents, with 51% having an undergraduate degree, 31.6% a graduate degree, and 7% having a Ph.D., which accounts for 89.6% of the total sample.

In terms of occupation, students represent 30,9%, while participants employed (part-time and full-time) represent 64.7% of the total sample, being the latter the largest group. The percentage of unemployed or retired people is the same, with 0.7% of participants in each group. Regarding marital status, 75.7% are single, 18.4% are married, 0.7% are divorced and 5.1% mentioned another status. In terms of gross monthly income, the distribution between the several ranges is very similar, with 15.4% earning less than 500€, 19.1% ranging between 501€-1000€, 19.9% in the 1001€-1500€ range, 11.8% in the 1501€-2000€ range, 3.7% in the 2001€-2500€ range, 17.6% earn more than 2500€ and 12.5% prefer not to reveal the amount.

Lastly, an analysis on the yearly purchasing frequency of olive oil was conducted with 64.7% of the respondents answering a frequency of four or more times per year, 12.5% a frequency of three times, 16.20% of two times and 6.60% of only once per year (Appendix 7.2).

### **4.3. Parametric Data Criteria Validation**

Before proceeding with the inferential analysis, it was necessary to create some variables and test whether the data obtained in the survey was parametric or non-parametric.

Firstly, a variable labeled PerceivedQuality\_All was computed to comprise the construct of perceived quality for the three stimuli in one variable. It was computed as the sum of PerceivedQuality\_1, PerceivedQuality\_2 and PerceivedQuality\_3. The same methodology was applied to create the BrandImage\_All and WTP\_All variables.

To be considered parametric, the data needs to be normally distributed, there should be homogeneity of variances, data needs to be classified as interval and there should be independence of results.

### *Normality Test*

To draw a conclusion regarding the normality of the variables, the Shapiro-Wilk test ( $H_0$ =The variable follows a normal distribution) was conducted (Table 4). The null hypothesis is not rejected for  $p > 0.05$ .

For brand image, all variables presented evidence of normality since  $p > 0.05$ , which determines that one cannot reject the null hypothesis. For perceived quality, the *p-value* is not significant for É Continente and Continente, but it is significant for Continente Seleção which indicates a deviation from normality for this last case. For willingness to pay, the *p-value* is significant for É Continente and Continente Seleção which implied the rejection of the null hypothesis and consequently the violation of the normality assumption.

Even though this test reveals that the data is not normally distributed for perceived quality nor for WTP, according to the Central Limit Theorem, since the sample size is larger than 30, it is reasonable to assume that the data is normally distributed (Field, 2009).

**Table 4.** Test of Normality

	<b>Shapiro-Wilk</b>		
	Statistic	df	Sig.
BrandImage_1	0.975	40	0.522
BrandImage_2	0.980	44	0.633
BrandImage_3	0.980	52	0.506
BrandImage_All	0.985	136	0.137
PerceivedQuality_1	0.969	40	0.330
PerceivedQuality_2	0.975	44	0.432
PerceivedQuality_3	0.921	52	0.002
PerceivedQuality_All	0.964	136	0.001
WTP_1	0.929	40	0.015
WTP_2	0.977	44	0.509
WTP_3	0.765	52	0.001
WTP_All	0.833	136	0.001

### *Homogeneity of Variances*

To verify if the assumption of homoscedasticity is satisfied, the Levene's test was performed (Table 5). The null hypothesis of equal variances is tested and is not rejected for  $p > 0.05$ .

The BrandImage\_All presents a *p-value* of 0.784 and therefore the assumption of homogeneity of variances is verified. The PerceivedQuality\_All presents a *p-value* of 0.024 which implies the rejection of the null hypothesis. Lastly, the WTP\_All presents a *p-value* of 0.075 which means that the assumption is verified.

**Table 5.** Test of Homogeneity of Variance

	Levene Statistic
BrandImage_All	0.784
PerceivedQuality_All	0.024
WTP_All	0.075

### *Interval Data*

Both brand image and perceived quality were measured using a 7-point Likert scale and are therefore classified as interval data.

Willingness to Pay was measured on an interval scale ranging from 0€ to 15€ and therefore is considered interval data as well.

### *Independence*

This assumption was validated since each respondent was only exposed to one of the three stimuli and each respondent was only able to answer the survey once.

Hence, the conclusions derived from the parametric data criteria validation are presented in the table below.

**Table 6.** Data Classification

	Normality	Homogeneity	Interval Data	Independence	Classification
Brand Image	Verified	Verified	Verified	Verified	Parametric
Perceived Quality	Not Verified	Not verified	Verified	Verified	Non-Parametric
Willingness to Pay	Not Verified	Verified	Verified	Verified	Non-Parametric

#### 4.4 Results from Hypotheses Testing

**Hypothesis 1:** *The private-label quality tier has a positive impact on consumer's perceived quality of the product.*

To test whether the private-label tier has an impact on consumer's perceived quality of the product, a linear regression was performed. Even though perceived quality was classified as non-parametric data, given the limitations of this research, a linear regression was performed, being the null hypothesis:

*H<sub>0</sub>: The Private-label tier does not have a positive impact on perceived quality.*

Consequently, the following linear regression was created:

$$PQ = \beta_0 + \beta_1 PLTier_i + \varepsilon_i,$$

$$i = 1, \dots, N$$

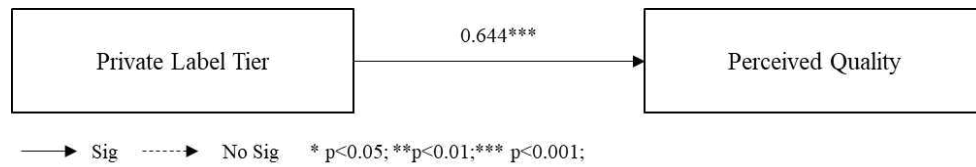
Where PQ is perceived quality, PLTier is the private-label tier, and N is equal to 136 individuals.

To perform a linear regression, the underlying assumptions were validated. The mean of the error term is zero ( $E\{\varepsilon_i\} = 0$ ) which was verified on the residuals statistics table, and the error terms are independent of each other since the scatterplot which depicts the standardized residuals (Y) and standardized residual values (X) shows no pattern of results. Moreover, by analyzing the histogram and normal probability plot, one confirms the normal distribution of residuals. Lastly, there is no autocorrelation in the sample since the Durbin Watson presented a value of 1.834 which is close to 2 (Field, 2009).

Considering that the four assumptions of linear regression were met, the analysis proceeded, and the output of ANOVA showed that the effect of the independent variable, PLTier, on the dependent variable, PQ, is statistically significant ( $F(1; 134) = 29.224$ );  $p < 0.001$ ) which means that the null hypothesis is rejected. Moreover, in the model summary, the  $R^2$  of 17.9% reveals that 17.9% of the variance in perceived quality is explained by the private-label tier. To further analyze this impact, one should also analyze the  $\beta_1$ . Since  $\beta_1=0.644$  where  $\beta_1>0$  and  $p < 0.001$ , the effect of PLTier on PQ is positive and statistically significant. This means that by

increasing the private-label tier, the perceived quality increases by 0.644, all other things being equal.

Therefore, one may validate hypothesis 1 and reject the null hypothesis.



**Figure 6.** Result from Hypothesis 1 Testing

Hence, the unstandardized regression equation can be defined as:

$$PQ = 3.152 + 0.644 \times PLTier_i$$

**Hypothesis 1a):** *Perceived quality is higher for a premium private-label than for a standard private-label.*

To infer about the validity of hypothesis H<sub>1a</sub>), a Mann-Whitney test was performed. Since perceived quality was classified as non-parametric data, to compare the means of perceived quality between the two tiers, this was the appropriate test. The null hypothesis is the following:

H<sub>0</sub>= There is no difference between the means of the two private-label tiers.

The test revealed that there is no significant difference in perceived quality between the standard and premium private-label. Since  $U = 884.00$ ;  $p > 0.05$ , one cannot reject the null hypothesis which leads to the rejection of hypothesis 1a).

**Table 7.** Mann-Whitney Test (Continete – Continete Seleção)

	Continete	Continete Seleção	U Statistic	Sig.	Hypothesis Validation
Perceived Quality	42.59	53.50	884.00	0.055	Rejected

\*p<0.05; \*\*p<0.01; \*\*\*p<0.001

**Hypothesis 1b):** *Perceived quality is higher for a standard private-label than for an economy private-label.*

Following the same procedure done in the previous hypothesis, a Mann-Whitney test was performed to validate hypothesis H<sub>1b</sub>). The test revealed a significant difference in perceived

quality between the economy and standard tiers, since  $U = 473.50$ ;  $p < 0.001$ . Therefore, one rejected the null hypothesis which leads to the validation of hypothesis 1b).

**Table 8.** Mann-Whitney Test (É Continte – Continte)

	É Continte	Continte	U Statistic	Sig.	Hypothesis Validation
Perceived Quality	32.34	51.74	473.50	<0.001***	Validated

\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$

**Hypothesis 2:** *The private-label quality tier impacts consumer’s brand image of the product.*

In order to test whether the private-label tier has an impact on consumer’s brand image, a linear regression was performed with the following null hypothesis:

*H<sub>0</sub>: The Private-label tier does not have a positive effect on brand image.*

Consequently, the following linear regression was created:

$$BI = \beta_0 + \beta_1 PLTier_i + \varepsilon_i,$$

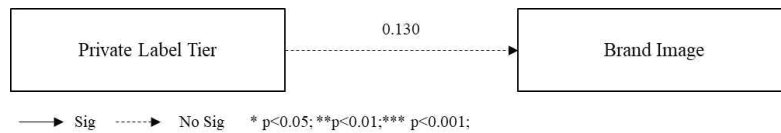
$$i = 1, \dots, N$$

Where BI is brand image, PLTier is the private-label tier and N is equal to 136 individuals.

To perform a linear regression, the underlying assumptions were validated. The mean of the error term is zero and the error term is normally distributed. Moreover, one confirmed that the error terms are independent of each other and that there is no autocorrelation in the sample since the Durbin Watson presented a value of 1.360 (Field, 2009).

Considering that the four assumptions of linear regression were met, the analysis proceeded, and the output of ANOVA showed that the effect of the independent variable on the dependent variable is not statistically significant ( $F(1; 134) = 1.841$ );  $p > 0.05$ ) which means that the null hypothesis cannot be rejected.

Therefore, one may conclude that the private-label tier does not impact brand image and hypothesis 2 is rejected.



**Figure 7.** Result from Hypothesis 2 Testing

**Hypothesis 2a):** Brand image is higher for a premium private-label than for a standard private-label.

To test the validity of this hypothesis, an independent t-test for Continente ( $M= 4.606$ ;  $SD= 0.826$ ), and Continente Seleção ( $M=4.436$ ;  $SD= 0.883$ ) was conducted. Since the homoscedasticity assumption was verified, ( $F(1; 94) = 0.100$ );  $p > 0.05$ ), the analysis continued. However, the difference between the two groups is not statistically significant, since  $t(94) = 0.969$ ,  $p > 0.05$ . Therefore, hypothesis  $H_{2a}$ ) is rejected.

**Table 9.** Independent-Samples t-test (Continente – Continente Seleção)

	Mean	SD	t-test	df	p-value	Conclusion
Continente	4.606	0.826	0.969	94	0.335	Hypothesis 2a) Rejected
Continente Seleção	4.436	0.883				

\* $p<0.05$ ; \*\* $p<0.01$ ; \*\*\* $p<0.001$

**Hypothesis 2b):** Brand image is higher for a standard private-label than for an economy private-label.

The same test was performed for hypothesis  $H_{2b}$ ). By conducting the independent t-sample test for É Continente ( $M= 4.150$ ;  $SD= 1.001$ ) and Continente ( $M= 4.606$ ;  $SD= 0.826$ ), one analyzed that the mean of the second group is higher than the one of the first group. To confirm whether this difference is statistically significant, the results from the independent t-test were analyzed. Since  $F(1; 82) = 0.462$ ;  $p > 0.05$ , the homogeneity of variances is confirmed. Therefore, one should read the test statistics in the row labelled *Equal Variances Assumed*. Since  $t(82) = -2.284$ ,  $p < 0.05$ , one may infer that there are significant differences between the population means of the two groups. Therefore, hypothesis  $H_{2b}$ ) is validated.

**Table 10.** Independent-Samples t-test (É Continente – Continente)

	Mean	SD	t-test	df	p-value	Conclusion
É Continente	4.150	1.001	-2.284	82	0.025*	Hypothesis 2b) Validated
Continente	4.606	0.826				

\* $p<0.05$ ; \*\* $p<0.01$ ; \*\*\* $p<0.001$

**Hypothesis 3:** *Perceived Quality has a positive impact on brand image.*

To conduct a linear regression, both independent and dependent variables should be parametric. Even though this is not the case for perceived quality, for this dissertation, a linear regression will be conducted to test the effect of perceived quality on brand image. The null hypothesis for this test is:

*H<sub>0</sub>: Perceived Quality does not have a positive effect on brand image.*

Consequently, the following linear regression was created:

$$BI = \beta_0 + \beta_1 PQ_i + \varepsilon_i,$$

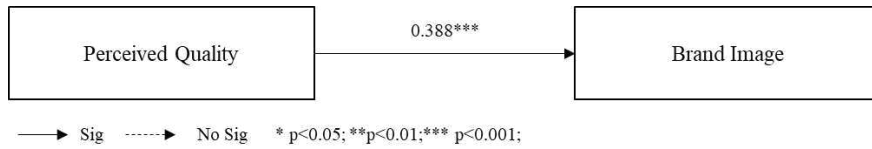
$$i = 1, \dots, N$$

Where BI is brand image, PQ is perceived quality and N is equal to 136 individuals.

To perform a linear regression, the underlying assumptions were validated. The mean of the error term is zero and the error term is normally distributed. Moreover, one confirmed that there is independence among the error terms and that there is no autocorrelation in the sample since the Durbin Watson presented a value of 1.786 which is close to 2 (Field, 2009).

Considering that the four assumptions of linear regression were met, the analysis proceeded, and the output of ANOVA showed that the effect of the independent variable on the dependent variable is statistically significant ( $F(1; 134) = 52.576$ );  $p < 0.001$ ). Moreover, in the model summary, the R<sup>2</sup> of 28.2% reveals that 28.2% of the variance of brand image is explained by perceived quality. To further analyze the impact of the independent variable on the dependent variable, one should also analyze the  $\beta_1$ . Since  $\beta_1=0.388$  where  $\beta_1>0$  and  $p < 0.001$ , the effect of PQ on BI is positive and statistically significant. This means that by increasing one unit the perceived quality over a product, the brand image increases by 0.388, all other things being equal.

Therefore, one may validate hypothesis 3 and reject the null hypothesis.



**Figure 8.** Result from Hypothesis 3 Testing

Hence, the unstandardized regression equation can be defined as:

$$BI = 2.661 + 0.388 \times PQ_i$$

**Hypothesis 4:** *The private-label quality tier will have an impact on consumer’s willingness to pay for the product.*

In order to test whether the private-label tier, labeled PLTier, has an impact on consumer’s WTP for the product, a linear regression was performed. Even though willingness to pay is non-parametric, for the scope of this dissertation, this test was performed. The null hypothesis for this test is:

*H<sub>0</sub>: The private-label tier does not have a positive effect on willingness to pay.*

Consequently, the following linear regression was created:

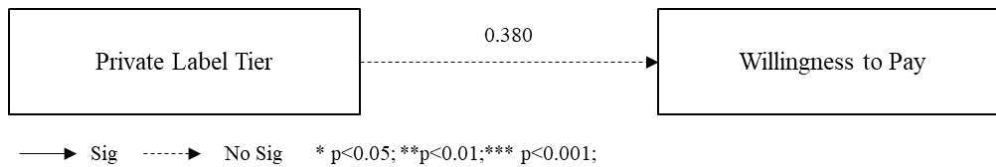
$$WTP = \beta_0 + \beta_1 PLtier_i + \varepsilon_i,$$

$$i = 1, \dots, N$$

Where WTP is willingness to pay, PLTier is the private-label tier and N is equal to 136 individuals.

To perform a linear regression, the underlying assumptions were validated. The mean of the error term is zero and the error term is normally distributed. Besides that, one confirmed that there is independence among the error terms and that there is no autocorrelation in the sample since the Durbin Watson presented a value of 1.960 which is very close to 2 (Field, 2009).

Considering that the four assumptions of linear regression were met, the analysis proceeded, and the output of ANOVA showed that the effect of the independent variable on the dependent variable is not statistically significant ( $F(1; 134) = 2.507$ );  $p > 0.05$ ), which means that the null hypothesis cannot be rejected. Hence, the effect of the private-label tier on the willingness to pay is not statistically significant. Therefore, hypothesis 4 is not validated.



**Figure 9.** Result from Hypothesis 4 Testing

**Hypothesis 4a):** *The willingness to pay for a premium private-label is higher than for a standard private-label.*

To test whether there are differences in the WTP between the private-label tiers, a Mann-Whitney test was performed. Since willingness to pay is non-parametric, this was the adequate test to infer about the validity of this hypothesis.

According to the test performed, there are no significant differences in WTP between the economy and standard tiers, since  $U = 974.00$ ;  $p > 0.05$ . Therefore, one cannot reject the null hypothesis which leads to the rejection of hypothesis 4a).

**Table 11.** Mann-Whitney Test (Continete – Continete Seleção)

	Continete	Continete Seleção	U Statistic	Sig.	Hypothesis 4a)
Willingness to Pay	44.64	51.77	974.00	0.211	Rejected

\*p<0.05; \*\*p<0.01; \*\*\*p<0.001

**Hypothesis 4b):** *The willingness to pay for a standard private-label is higher than for an economy private-label.*

To test this hypothesis, a Mann-Whitney test was performed, following the same reasoning as the hypothesis 4a).

According to the test performed, there are no significant differences in WTP between the economy and standard tiers, since  $U = 869.50$ ;  $p > 0.05$ . Therefore, one cannot reject the null hypothesis which leads to the rejection of hypothesis 4b).

**Table 12.** Mann-Whitney Test (É Continete – Continete)

	É Continete	Continete	U Statistic	Sig.	Hypothesis 4b)
Willingness to Pay	42.24	42.74	869.50	0.925	Rejected

\*p<0.05; \*\*p<0.01; \*\*\*p<0.001

**Hypothesis 5:** *Perceived Quality will have a positive impact on customers' willingness to pay.*

As it was previously mentioned, willingness to pay is classified as non-parametric since the normality assumption was not met. Nonetheless, for the purpose of this dissertation, a linear regression was conducted to examine the impact of the perceived quality on willingness to pay, being the null hypothesis for this test:

$$H_0: \text{Perceived Quality does not have a positive effect on willingness to pay.}$$

Consequently, the following linear regression was created:

$$WTP = \beta_0 + \beta_1 PQ_i + \varepsilon_i,$$

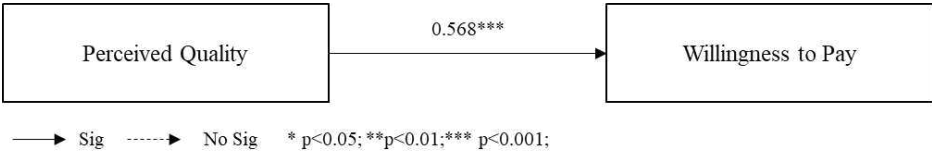
$$i = 1, \dots, N$$

Where WTP is the willingness to pay, PQ is perceived quality and N is equal to 136 individuals.

To perform a linear regression, the underlying assumptions were validated. The mean of the error term is zero and the error term is normally distributed. Additionally, the error terms are independent and there is no autocorrelation in the sample since the Durbin Watson presented a value of 1.877.

The analysis of the output of the model shows that the effect of perceived quality on willingness to pay is statistically significant ( $F(1; 134) = 14.010$ );  $p < 0.001$ ). The model presents a  $R^2$  of 9.5%, meaning that 9.5% of the variance in the willingness to pay for a product is explained by perceived quality. Furthermore, since the  $\beta_1=0.568$  for a  $p < 0.001$ , one may infer that the effect of perceived quality on WTP is positive and statistically significant. This means that an incremental increase in perceived quality, increases WTP by 0.568, all other things being equal.

Therefore, one may validate hypothesis 5 and reject the null hypothesis.



**Figure 10.** Result from Hypothesis 5 Testing

Hence, the unstandardized regression equation can be defined as:

$$WTP = 2.429 + 0.568 \times PQ_i$$

**Hypothesis 6:** *Brand Image will have a positive impact on customers' willingness to pay.*

Similarly to what has been done to test the validity of hypothesis 5, a linear regression was conducted to test the validity of this hypothesis, being the null hypothesis:

*H<sub>0</sub>: Brand Image does not have a positive effect on customer's willingness to pay.*

More specifically, the following linear regression was created:

$$WTP = \beta_0 + \beta_1 BI_i + \varepsilon_i,$$

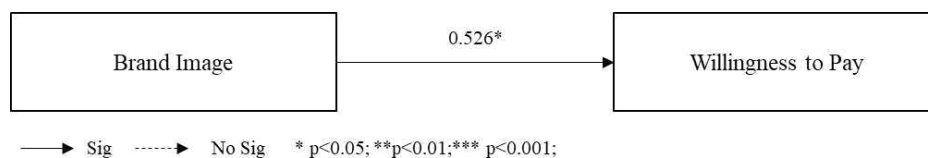
$$i = 1, \dots, 136$$

where WTP is willingness to pay, BI is brand image and N is equal to 136 individuals.

To perform a linear regression, the underlying assumptions were validated. The mean of the error term is zero, the error term is normally distributed, the error terms are independent of each other, and there is no autocorrelation in the sample since the Durbin Watson presented a value of 1.947.

The analysis of the output of the model shows that the impact of brand image on WTP is statistically significant ( $F(1; 134) = 6.087$ );  $p < 0.05$ ). Moreover, in the model summary, the R<sup>2</sup> is 4.3%, which means that 4.3% of the variance in WTP is explained by brand image. The impact of brand image on WTP is positive and significant since  $\beta_1=0.526$  and  $p < 0.05$ . This means that an incremental increase in brand image leads to an increase of 0.526 on the WTP, all other things being equal.

Therefore, one may validate hypothesis 3 and reject the null hypothesis.

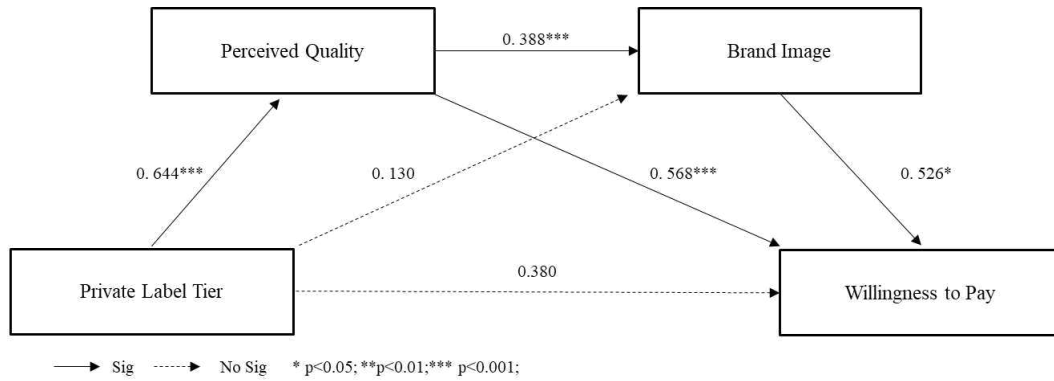


**Figure 11.** Result from Hypothesis 6 Testing

Hence, the unstandardized regression equation can be defined as:

$$WTP = 2.664 + .526 \times BI_i$$

Overall, after conducting hypotheses testing, the overall model could be represented by the following diagram:



**Figure 12.** Hypotheses Results

### General Model

With the purpose of testing the serial mediation model, model 6 of Hayes’ PROCESS analysis tool was used.

The variables used in this model were WTP, as the dependent variable (Y), Private-label tier, as the independent variable (X), perceived quality as the first mediator (M<sub>1</sub>), and brand image as the second mediator (M<sub>2</sub>). Accordingly, PLTier is modeled as affecting WTP through four pathways. The first one is indirect and runs from the PLTier to the WTP through perceived quality, the second is also indirect through brand image and a third indirect effect passes through both M<sub>1</sub> and M<sub>2</sub> in serial, with M<sub>1</sub> affecting M<sub>2</sub>. The direct effect (c’) from PLTier to WTP does not pass through either M<sub>1</sub> or M<sub>2</sub> and is the estimated difference in WTP between two observations that differ by one on the PLTier but are equal on the two mediators of the model.

Hence, this statistical model can be translated into four equations:

$$PQ_{AU} = i_{PQ_{AU}} + a_1 PLTier + e_{PQ_{AU}} \quad (1)$$

$$BI_{AU} = i_{BI_{AU}} + a_2 PLTier + d_{21} PQ_{AU} + e_{BI_{AU}} \quad (2)$$

$$WTP_{AU} = i_{WTP_{AU}} + c' PLTier + b_1 PQ_{AU} + b_2 BI_{AU} + e_{PLTier} \quad (3)$$

$$c = c' + a_1 b_1 + a_2 b_2 + a_1 d_{21} b_2 \quad (4)$$

The model was run and below one may analyze the regression coefficients, standard errors, and model summary information.

**Table 13.** Serial Mediation Model Output

Antecedent		Consequent										
		M <sub>1</sub> (Perceived Quality)			M <sub>2</sub> (BI)			Y (WTP)				
		Coeff.	SE	<i>p</i>	Coeff	SE	<i>p</i>	Coeff	SE	<i>p</i>		
X (PLTier)	a <sub>1</sub>	0.644	0.119	0.000	a <sub>2</sub>	-0.147	0.089	0.000	c'	0.042	0.259	0.870
M <sub>1</sub> (PQ)		-	-	-	d <sub>21</sub>	0.429	0.059	0.000	b <sub>1</sub>	0.492	0.199	0.015
M <sub>2</sub> (BI)		-	-	-		-	-	-	b <sub>2</sub>	0.164	0.249	0.510
Constant	i <sub>m1</sub>	3.152	.267	0.000	i <sub>m2</sub>	2.7836	.2593	.0000	i <sub>y</sub>	1.956	1.015	0.056
		R <sup>2</sup> =0.179 F(1,134)=29.224, p=0.000				R <sup>2</sup> =0.296 F(2,133)=27.967, p=0.000				R <sup>2</sup> =0.098 F(3,132)=4.763, p=0.000		

Replacing the values obtained in the output of model 6, one obtains the following three equations:

$$\widehat{PQ}_{All} = 3.152 + 0.644 \times PLTier \quad (5)$$

$$\widehat{BI}_{All} = 2.783 - 0.147 \times PLTier + 0.429 \times PQ_{All} \quad (6)$$

$$\widehat{WTP}_{All} = 1.956 + 0.042 \times PLTier + 0.492 \times PQ_{All} + 0.164 \times BI_{All} \quad (7)$$

$$c = 0.042 + 0.643 \times 0.492 + (-0.147) \times 0.164 + (0.643 \times 0.429 \times 0.164) = 0.379 \quad (8)$$

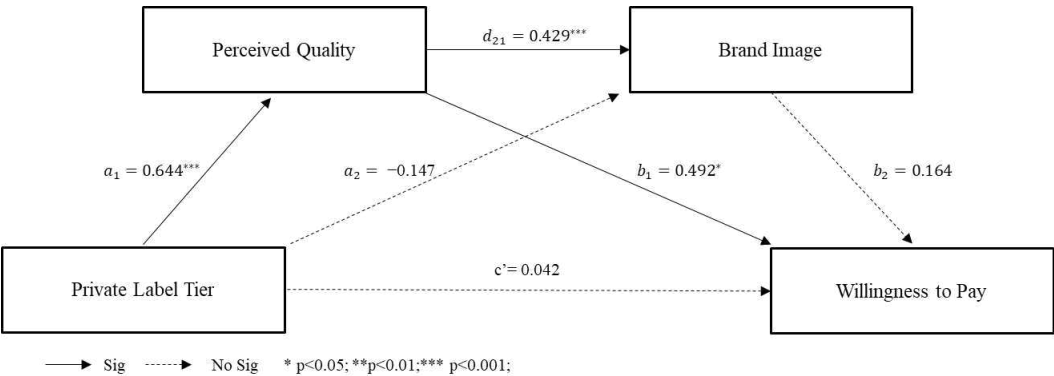
The direct effect is positive but not statistically significant,  $c' = 0.042$ ,  $t(132) = 0.164$ ,  $p > 0.05$ . The first indirect effect is the specific indirect effect of private-label tier on willingness to pay through perceived quality estimated as  $a_1 b_1 = 0.644(0.492) = 0.317$  and found in the output in the row labeled Ind1. Consequently, those who have seen a product from a higher private-label tier have revealed a higher perceived quality of the product since  $a_1$  is positive. Moreover, this increased perceived quality was associated with a higher willingness to pay for the product because  $b_1$  is also positive. This indirect effect can be interpreted as significantly positive because the bootstrap confidence interval is entirely above zero (0.099 to 0.579).

According to the model, the private-label tier has a significant positive impact on perceived quality,  $t(134) = 5.406, p < 0.001$ .

The second indirect effect, labeled Ind2, is the indirect effect of PLTier on WTP through brand image which is  $-0.024$ . It can be computed as the product of the effect of PLTier on brand image ( $a_2$ ) by the effect of brand image on WTP ( $b_2$ ), being the indirect effect of  $a_2b_2 = -0.147(0.164) = -0.024$ . However, this path of influence is not significant and different from zero because the bootstrap confidence interval straddles zero ( $-0.127$  to  $0.026$ ).

The third indirect effect can be analyzed in row Ind3. This is the specific indirect effect of PLTier on WTP through perceived quality and brand image in serial. This indirect effect is estimated as  $a_1d_{21}b_2 = 0.644(0.429)(0.164) = 0.045$  and it is not significantly positive because once again the bootstrap confidence interval straddles zero ( $-0.019$  to  $0.059$ ).

Lastly, the total indirect effect is  $0.338$  which is considered significant since the confidence interval does not contain zero ( $0.114$  to  $0.609$ ).



**Figure 13.** Serial Mediation Model (PROCESS)

## CHAPTER 5: CONCLUSIONS AND LIMITATIONS

This chapter will discuss the main conclusions of this study by answering the research questions formulated in Chapter 1. Moreover, managerial and academic implications together with the limitations of this study will be addressed.

### 5.1 Main Findings & Conclusions

The main goal of this research is to understand how different private-label tiers impact the willingness to pay of consumers. Additionally, one wanted to understand how this relationship may be mediated by perceived quality and brand image.

*RQ1: How do different private-label tiers impact consumer's willingness to pay?*

The first research question aimed to identify whether different tiers of a private-label would have an impact on consumer's willingness to pay. More specifically, one investigated if increasing PL tiers, from economy to standard and to premium, would result in higher WTP from consumers. However, contrary to what has been found in the literature, this relationship wasn't found to be significant. Moreover, when testing if there were significant differences between the WTP of the three PL tiers, one found that this relationship is also non-significant.

*RQ2: How does the perceived quality of the three private-label tiers influence consumer's willingness to pay?*

This research question's goal was to understand whether the three PL tiers would have a significant positive impact on perceived quality. Moreover, the focus was also to understand how the perceived quality would impact the consumer's WTP.

Firstly, the analysis of the quantitative data revealed that the private-label tiers have a significant positive impact on consumers' perceived quality. This finding supports previous research on the vertical differentiation of the three PL tiers. As it was suggested by the literature, there is a differentiation in terms of quality being the economy, standard and premium tiers associated with low, medium and high quality, respectively (Geyskens et al., 2010). In line with previous research, one found that 17.9% of the variance in perceived quality is explained by the private-label tier. Additionally, as the private-label tier increases by one, the perceived quality of the product increases by 0.644, *ceteris paribus*.

Moreover, in the hypothesis testing, perceived quality was proven to have a significant positive impact on consumers' willingness to pay. More specifically, one concluded that 9.5% of the variance in WTP is explained by perceived quality. An incremental increase in perceived quality leads to an increase of 0.568 monetary units in WTP, *ceteris paribus*. This result is supported by researchers who have studied that perceived quality is an antecedent of the consumer's WTP a price premium for a product (Netemeyer et al., 2004).

Furthermore, when testing the full model using the PROCESS tool, the results obtained confirmed the mediating role of perceived quality in the relationship between the independent variable, the private-label tier, and the dependent variable, WTP. In addition, results indicated that the direct effect of private-label tier on WTP became non-significant when controlling for perceived quality. Therefore, this study suggests that perceived quality is a complete mediator of this relationship. A complete mediation occurs when the association between the independent and dependent variables is entirely explained by the indirect effect. However, one should be very careful when taking such conclusions since this approach has been criticized in recent research. The criticism is mainly based on the fact that there might be multiple mediators of this effect when considered independently (Hayes, 2018).

*RQ3: Do distinct private-label tiers have a positive impact on consumer's brand image?*

The main goal of this question was not only to understand the impact of the three private-label tiers on brand image but also to understand whether brand image would have a significant impact on consumer's willingness to pay.

Contrarily to what has been observed for perceived quality, when it comes to the direct effect of several private-label tiers on brand image, this study does not support previous research. The relationship between PL tiers and brand image was not found to be significant. Nonetheless, one found a statistically significant difference between the population means of brand image of two tiers, the economy tier (É Contiente) and the standard tier (Contiente), being the brand image of the first lower than the one of the latter. However, the same result was not obtained when comparing the standard and the premium tiers. Contrarily, the premium tier revealed a lower brand image than the standard tier, which is contradictory to previous research on the topic.

Moreover, when testing the effect of brand image on consumers' willingness to pay, one obtained different results on the hypothesis testing, using linear regression, and on the full

model testing, using PROCESS's tool. On the first one, the impact of brand image on WTP is found to be statistically significant, with 4.3% of the variance on WTP being explained by brand image. This impact was classified as significant and one concluded that by increasing one unit of brand image, the consumer's WTP would increase by .526, *ceteris paribus*. However, on the latter, the relationship between these two variables is found not to be statistically significant.

## **5.2 Managerial and Academic Implications**

This research has significant contributions both in terms of managerial implications and academic knowledge enhancement.

Academically, this research has contributed with important insights for the study of three tiers of private-label for the same product category. Even though this portfolio strategy is gaining interest around the world and being adopted by several retailers, concrete research on this area is almost inexistent (Geysken et al., 2010). Most research done until the moment focuses only on two tiers, standard and premium (Palmeira & Thomas, 2011). Therefore, this dissertation fills this research gap and provides new insights into the importance of perceived quality as a mediator between the private-label tiers and the willingness to pay, a subject that has not been studied yet.

Regarding managerial implications, this research provides insights for retailers considering a three-tier portfolio strategy for their private-label. More specifically, in the case of the olive oil category, perceived quality is found to be a mediator of the relationship between the independent and dependent variables. Hence, if Continente decides to develop a low-quality tier, É Continente, for the aforementioned product category, a considerable focus should be placed on perceived quality. Even though this tier is the one with the lowest perceived quality, as supported by this study's result, the retailer should put considerable focus on perceived quality so that this tier occupies a distinct place in consumers' minds leading to different perceptions.

## **5.3 Limitations and Further Research**

Albeit this research has contributed with new insights both to academics and to retailers, there are several limitations which must be acknowledged regarding the analysis and results of this dissertation.

Firstly, the fact that the sample technique used is non-probabilistic prevents the generalization of the findings, since the results obtained are not representative of the overall population.

Moreover, one of the limitations is the sample size. When the survey was closed, a total of 176 responses were recorded. Nonetheless, the exclusion of 40 respondents, some due to ineligibility and others due to their failure to pass the attention check in the questionnaire, reduced substantially the sample size. This also resulted in some imbalanced sample sizes for each of the stimuli. Therefore, a larger sample size would result in more accurate results.

Another limitation of this study is that participants did not reveal significant differences in the overall quality perception for the three tiers when directly asked about it. Therefore, additional techniques had to be used to decide whether the analysis with the three tiers could proceed. For future studies, these questions should be therefore adapted in order to urge the expected results.

The last limitation is related to the fact that this study was conducted for a specific product category. Therefore, results cannot be generalized to all categories. In future research, other categories could be included, or more generally, studies on just the brand itself and not on a specific category could be conducted. However, since perceived quality can also be dependent on the product category, it may represent a challenge to study this variable just with the logos of the brands.

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## APPENDIX

### Appendix 1. Focus Group

#### Appendix 1.1. Participants Demographics

Participant ID	Age	Occupation	Place of Residence
1	23	Student	Lisbon
2	22	Student	Lisbon
3	21	Student	Lisbon
4	36	Worker	Lisbon
5	37	Worker	Lisbon
6	28	Worker	Lisbon
7	60	Retired	Évora
8	63	Retired	Évora

#### Appendix 1.2. Discussion Guide and Main Results

##### 1. Warm-Up and Introduction of the Participants

- Focus group conducted in Portuguese via Microsoft Teams with 8 participants
- Duration of the focus group: approximately 40 minutes
- Share with the participants that there are no right or wrong answers
- Introduction of the participants

##### 2. Introduction to the topic and Consumer Habits (5 minutes)

###### Q1. How often do you go to the supermarket?

- Student (number 3) still lives with his parents; Goes to the supermarket less frequently.
- Students (1 and 2) live alone so go to the supermarket more frequently; avoid buying everything at once; usually go 3/4 times a week
- Workers: Try to go during the weekend; During the week just to buy fruits and vegetables
- Retired: Daily

###### Q2. Which supermarkets do you usually go to and why?

- Continente: Big stores; Loyalty Program; Huge product variety
- Pingo Doce; Neighborhood Concept
- Lidl; Cheaper; Good cosmetic products (brand Cien); a lot of PLs
- Auchan: lots of product variety (assortment)

##### 3. National brands and Private-label (10 minutes)

###### Q3. As you may know in the supermarket you may find national brands and private-label (labels owned by a specific retailer). Do you have a clear preference between these two?

- It depends on the product.
- Most respondents revealed an increasing preference for private-label due to the increasing quality level and good value for money.
- Some participants said that they avoid buying specific products such as detergents from private-label. Others said they would not buy cosmetic products such as shampoo but buy shower gel

###### Q4. Which products do you usually buy from private-label?

- Almost every product (some examples that came to their mind when I asked: toilet paper; legumes; cookies)
- Avoid detergents; cleaning products; Drinks (Juice; Wine); Coffee; Cosmetics

###### Q5. Which supermarkets do you think have the best private-label and the ones in which you trust more? Why?

- Continente. Have more than 1 private-label. Possibility to buy a more premium private-label cheaper than the “national brand” with a very high quality; They have introduced Continente Bio and Equilibrio; “Sometimes is more expensive but I consider that some products have superior quality.”
- Pingo Doce: Students argue that this supermarket is cheaper than Continente and is easier to find one where they live. The private-label is cheaper than in Continente and with very high quality

- Lidl: A lot of good private-label but you need to know which ones to choose; It is more difficult to choose compared to Continente and Pingo Doce

**Q6. What are the main advantages and disadvantages of having several private-label?**

- Advantages: more offering for different income levels; premium private-label similar to the national brands; cheaper private-label still has a good quality (the last advantage was mentioned by students. Workers and retired people think that most of the time the cheapest option is not good
- Disadvantages: Cheapest option might not have enough quality; More difficult for us to choose from

**Q7. Participants are shown the logos of several private-label in one. Participants are informed that there will be a brief discussion about these brands.**



**Q8. Do you know all these brands?**

- All participants answered “Yes” except one of the participants (retired) that did not know Cien.

**Q9. What private brands do you associate as having the lowest quality?**

- Brand É (É Continente)

**Q10. What private labels do you associate with standard or mainstream brands?**

- Pingo Doce; Continente; Cien

**Q11. What private brands do you associate as premium?**

- Continente Seleção; Two participants identified that Pingo Doce has a line extension of premium products called “Iguarias Portuguesas”; Most participants did not know that Pingo Doce had more premium products

**Q12. Which products do you always buy from private-label?**

- Napkins; Paper Towel; Rice; Pasta; Tuna

**Q13. Which products would you definitely buy from a premium private-label but not from an economy one?**

- Detergents; “Nutella”; Wine; Butter; Oil; Feminine Hygiene; “Fairy”

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**4. Consumer Preferences of Olive Oil (15 minutes)**

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**Q14. When thinking of olive oil which brands come to your mind?**

- Moura/ Barrancos Azeite de Moura; Galo; Esporão; Cartuxa; Oliveira da Serra; Continente; Pingo Doce

**Q15. Would you buy olive oil from a private-label?**

- Retired People: High preference for national brands (Moura/Barrancos) and mentioned that would only buy olive oil from a premium private-label.
- Students (1 and 2): buy the cheapest option in the supermarket; Did not identify huge differences in terms of quality; Always buy from private-label and do not have a preference for the private-label
- Workers: Some of them buy from a national brand (the one with the best price at the moment of purchase); Others choose the mainstream PL or the premium private-label

**Q16. What characteristics do you value the most in olive oil?**

- Produced in Portugal
- Bottle made of glass
- Ease to Use packaging

**Q17. Now imagine that you go to the supermarket (Contidente) and that you find these two bottles of olive oil next to each other on the shelf. What is your overall opinion about the two? Do you see any potential differences in terms of quality?**

- Most participants revealed that they would consider the first bottle as having superior quality because it is from Contidente Seleção which they believe is superior when compared to just Contidente.
- They believe the quality of the first would be superior to the second one.
- Just one participant (Student #1) revealed that since the main characteristics such as “Azeite Virgem Português” and “100% Português” are the same in the two bottles she would perceive it as similar.
- Three participants also revealed that the bottle of the first one seemed more premium than the second one



**Q18. Now imagine that instead of having just the two bottles that I’ve already shown you; you have an additional one... What is your perception about this product?**

- Inferior quality (low-quality brand)
- The bottle seems made of plastic
- Nothing about the country of origin
- It says just “Olive oil.”
- Does not highlight any positive feature



**Q19. How would you rank these three products from the one with the lowest quality to the one with the best quality? Why?**

- The answers were the same for all participants (answers based on the brand and on the bottle itself)
- Low-Quality: É Contidente
- Medium-Quality: Contidente
- High quality: Contidente Seleção

## Appendix 2. Construct Details

Construct	Literature	Journal	Items	Description of the Items
Private-label tier	-	-	-	-
Willingness to Pay	(Marbeau, 1987)	Journal of the Market Research Society	2	<ul style="list-style-type: none"> <li>○ Above which price would you definitely not buy the product, because you can't afford it or because you didn't think it was worth the money?</li> <li>○ Below which price would you say you would not buy the product because you would start to suspect the quality?</li> </ul>
Perceived Quality	(Bao et al., 2011)	Journal of Business Research	4	<ul style="list-style-type: none"> <li>○ The product is of high quality.</li> <li>○ The product is very reliable.</li> <li>○ The product is a superior product.</li> <li>○ This product is of very bad quality. (<i>r</i>)</li> </ul>
Brand Image	(Martínez & De Chernatony, 2004)	Journal of Consumer Marketing	6	<ul style="list-style-type: none"> <li>○ This brand provides a good value for money.</li> <li>○ There is a reason to buy this brand instead of others.</li> <li>○ The brand has personality.</li> <li>○ The brand is interesting.</li> <li>○ I have a clear impression of the type of people who consume the brand.</li> <li>○ The brand is different from competing brands.</li> </ul>

## Appendix 3. Online Survey Questionnaire

Show Block: Introduction (1 Question) Add Below Move Duplicate Delete

Show Block: Screening Questions (2 Questions) Add Below Move Duplicate Delete

Randomizer  
 Randomly present  of the following elements  Evenly Present Elements  
Add Below Move Duplicate Collapse Delete

Show Block: Stimulus 1 (7 Questions) Add Below Move Duplicate Delete

Show Block: Stimulus 2 (7 Questions) Add Below Move Duplicate Delete

Show Block: Stimulus 3 (7 Questions) Add Below Move Duplicate Delete

Show Block: Manipulation Check (3 Questions) Add Below Move Duplicate Delete

Show Block: Demographic Questions (6 Questions) Add Below Move Duplicate Delete

End of Survey Move Duplicate Customize Delete

### Introduction

Dear Participant,

Thank you in advance for participating in this survey as part of my master's thesis at Católica Lisbon School of Business and Economics. This survey will take **no more than 4 minutes** to complete. I kindly ask you to answer the questions truthfully since it is important for the research to get your authentic opinions and perceptions on the topic. There are no correct nor incorrect answers and all of them are confidential, so your anonymity is ensured. The data gathered will exclusively be used for the purpose of a master's dissertation.

If you have any questions, please do not hesitate to contact me: s-mtmatos@ucp.pt.

If you are willing to fill in the survey, please click on the "Next" button.

Thank you!

### 1. Screening Questions

1.1. Have you ever purchased olive oil?

- Yes (1)
- No (2)

*If the respondent selects "No", skip directly to the end of the survey*

1.2. How often do you purchase olive oil, on average, per year?

- Never (1)
- One Time (2)
- Two Times (3)
- Three Times (4)
- Four or more times (5)

*If Never choice is selected, skip to the End of the Survey*

### 2. /3. /4. Stimulus

2.1./3.1 /4.1 Imagine you go shopping and you see this product on the shelf. Please look at it carefully. You will then be asked questions about the shown product.

You can move to the next page only after 10 seconds.

2.2. /3.2. /4.2 Please look at this product carefully.

*One of the three stimuli is randomly presented to the respondent.*

### 2.4./3.4 /4.4 Perceived Quality

Please indicate your level of agreement with the following statements.

Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
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The product is of high quality.

The product is reliable.

The product is a superior product.  
 The product is of very bad quality.

### 2.5. /3.5 /4.5 Brand Image

Please indicate your level of agreement with the following statements.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
This brand provides a good value for money.							
There is a reason to buy this brand instead of others.							
This brand has personality.							
This brand is interesting.							
I have a clear impression of the type of people who consume this brand.							
Please choose "Strongly Agree".							
This brand is different from competing brands.							

### 2.6/3.6/ 3.7 Willingness to Pay

2.6/3.6 /4.6 Above which price would you definitely not buy the product, because you can't afford it or because you didn't think it was worth the money?

2.7/ 3.7/ 3.8 Below which price would you say you would not buy the product because you would start to suspect the quality?

### 5. Manipulation Check

5.1. Please indicate the level that better describes your overall perception about the quality of this product.

	Extremely Poor (1)	Poor (2)	Somewhat Poor (3)	Neutral (4)	Somewhat Good (5)	Good (6)	Extremely Good (7)
Overall Quality							

5.2. This brand is a...

- Premium Brand (1)
- Standard Brand (2)
- Economy Brand (3)

5.3. What was the brand of Olive Oil you have just seen?

- É Continente (1)
- Continente (2)
- Continente Seleção (3)

### 6. Demographic Questions

6.1 What is your gender?

- Male (1)
- Female (2)
- Non-binary/third gender (3)
- Prefer not to say (4)

6.2 How old are you?

- Under 18 (1)
- 18-24 years old (2)
- 25-34 years old (3)
- 35-44 years old (4)
- 45-54 years old (5)
- 55-64 years old (6)
- 65+ years old (7)

---

6.3. What is your nationality?

- Portuguese <sup>(1)</sup>
- Brazilian <sup>(2)</sup>
- German <sup>(3)</sup>
- Italian <sup>(4)</sup>
- Other <sup>(5)</sup>

---

6.4. What is your monthly gross income?

- Less than 500€ <sup>(1)</sup>
- 500€-999€ <sup>(2)</sup>
- 1000€-1499€ <sup>(3)</sup>
- 1500€-1999€ <sup>(4)</sup>
- 2000€-2499€ <sup>(5)</sup>
- More than 2500€ <sup>(6)</sup>
- Prefer not to say <sup>(7)</sup>

---

6.5 What is your current marital status?

- Single <sup>(1)</sup>
- Married <sup>(2)</sup>
- Divorced <sup>(3)</sup>
- Widowed <sup>(4)</sup>
- Prefer not to say <sup>(5)</sup>
- Other <sup>(6)</sup>

---

6.6 What is your current occupation?

- Student <sup>(1)</sup>
- Student-Worker <sup>(2)</sup>
- Employed <sup>(3)</sup>
- Unemployed <sup>(4)</sup>
- Retired <sup>(5)</sup>
- Prefer not to say <sup>(6)</sup>

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6.7 What is the highest level of education you have completed?

- Less than high school <sup>(1)</sup>
  - High School Graduate <sup>(2)</sup>
  - Undergraduate Degree / Bachelor's Degree <sup>(3)</sup>
  - Graduate Degree / Master's Degree <sup>(4)</sup>
  - Ph.D. or higher <sup>(5)</sup>
  - Prefer not to say <sup>(6)</sup>
- 

**Appendix 4. Descriptives: Variables**

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Stimuli	Perceived Quality					Brand Image					Willingness to Pay				
	N	Min	Max	Mean	Sd. Dev	N	Min	Max	Mean	Sd. Dev	N	Min	Max	Mean	Sd. Dev
É Continente	40	1.25	6	3.64	1.29	40	1.33	6.67	4.15	1.00	40	0.73	10.42	4.79	2.19
Continente	44	2.75	7	4.72	0.90	44	2.83	6.67	4.61	0.83	44	1.98	8.08	4.55	1.39
Continente Seleção	52	1.50	7	4.97	1.15	52	2.17	7.00	4.44	0.88	52	1.99	15.00	5.50	2.88

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## Appendix 5. Manipulation Check

### A5.1. ANOVA

#### A5.1.1. Descriptives (Overall Quality)

	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
É Continente	40	3.75	1.335	0.211	3.32	4.18	1	7
Continente	44	4.36	0.990	0.149	4.06	4.66	2	6
Continente Seleção	52	4.79	1.143	0.159	4.47	5.11	1	1
Total	136	4.35	1.226	0.105	4.14	4.55	1	7

#### A5.1.2. Test of Homogeneity of Variances

		Levene Statistic	Df.1	Df.2	Sig.
OverallQuality	Based on mean	2.108	2	133	0.126
	Based on median	2.331	2	133	0.101
	Based on median and with adjusted df	2.331	2	130.235	0.101
	Based on trimmed mean	2.181	2	133	0.117

#### A5.1.3. ANOVA

OverallQuality	Sum of squares	Df	Mean Square	F	Sig.
Between Groups	24.402	2	12.201	9.099	<0.001
Within Groups	178.355	133	1.341		
Total	202.757	135			

#### A5.1.4. Robust Tests of Equality of Means

OverallQuality	Statistic <sup>a</sup>	Df1	Df2	F	Sig.
Welch	7.709	2	84.344	9.099	<0.001
Within Groups	8.942	2	1.341	117.099	<0.001

a. Asymptotically F distributed

#### A5.1.5. Multiple Comparisons

Dependent Variable: Overall Quality  
Tukey HSD

					95% Confidence Interval	
PLTier	PLTier	Mean Difference	Std. Error	Sig.	Lower	Upper
É	Continente	-0.614*	0.253	0.044	-1.21	-0.01
Continente	Continente Seleção	-1.038*	0.244	<0.001	-1.62	-0.46
Continente	É Continente	0.614*	0.253	0.044	0.01	1.21
	Continente Seleção	-0.425	0.237	0.177	-0.99	0.14
Continente	É Continente	1.038*	0.244	<0.001	0.46	1.62
Seleção	Continente	0.425	0.237	0.177	-0.14	0.99

\* The mean difference is significant at the 0.05 level

## Appendix 5.2. Independent-Samples T-tests

### A5.2.1. Group Statistics Perceived Quality (É Continente – Continente)

		Mean	St. Deviation	N
PerceivedQuality_All	É Continente	3.644	1.295	40
	Continente	4.716	0.895	44

### A5.2.2. Independent-Samples T-test For Perceived Quality (É Continente – Continente)

Perceived Quality_All	Levene's Test		Significance				95% CI of the difference			
	F	Sig.	t	Df	One-sided p	Two-sided p	Mean Diff.	Std. Error Diff.	Lower	Upper
Equal variances assumed	9.254	0.003	-4.4	82	<0.001	<0.001	-1.072	.2410	-1.55	-0.593
Equal Variances not assumed			-4.4	68.53	<0.001	<0.001	-1.072	.2452	-1.56	-0.583

### A5.2.3. Group Statistics Brand Image (É Continente – Continente)

		Mean	St. Deviation	N
BI_All	É Continente	4.150	1.002	40
	Continente	4.606	0.826	44

### A5.2.4. Independent-Samples T-test for Brand Image (É Continente – Continente)

Perceived Quality_All	Levene's Test		Correlations				95% CI of the difference			
	F	Sig.	t	df	One-sided p	Two-sided p	Mean Difference	Std. Error Diff.	Lower	Upper
Equal variances assumed	0.462	0.498	-2.3	82	0.012	0.025	-0.456	0.200	-0.853	-0.059
Equal Variances not assumed			-2.3	75.83	0.013	0.026	-0.456	0.202	-0.857	-0.055

**A5.2.5. Group Statistics WTP (É Continente – Continente)**

		Mean	St. Deviation	N
WTP_All	É Continente	4.786	2.188	40
	Continente	4.549	1.390	44

**A5.2.6. Independent-Samples T-test for Willingness to Pay (É Continente – Continente)**

WTP_All	Levene's Test for Equality of Variances		t	df	Correlations		Mean Difference	Std. Error Diff.	95% CI of the difference	
	F	Sig.			One-sided p	Two-sided p			Lower	Upper
Equal variances assumed	5.075	0.027	0.597	82	0.276	0.552	0.236	0.396	-0.553	1.023
Equal Variances not assumed			0.585	64.95	0.280	0.561	0.236	0.404	-0.571	1.044

**A5.2.7. Group Statistics Perceived Quality (É Continente – Continente Seleção)**

		Mean	St. Deviation	N
Perceived Quality_All	É Continente	3.644	1.295	40
	Continente Seleção	4.966	1.155	52

**A5.2.8. Independent T test for Perceived Quality (É Continente– Continente Seleção)**

Perceived Quality_All	Levene's Test for Equality of Variances		t	df	Correlations		Mean Difference	Std. Error Diff	95% CI of the difference	
	F	Sig.			One-sided p	Two-sided p			Lower	Upper
Equal variances assumed	2.536	0.115	-5.166	90	<0.001	<0.001	-1.323	0.256	-1.831	-0.814
Equal Variances not assumed			-5.089	78.78	<0.001	<0.001	-1.323	0.260	-1.839	-0.805

**A5.2.9. Group Statistics Brand Image (É Continente – Continente Seleção)**

		Mean	St. Deviation	N
BI_All	É Continente	4.150	1.002	40
	Continente Seleção	4.436	0.883	52

**A5.2.10. Independent T test for Brand Image (É Continente – Continente)**

BI_ALL	Levene's Test for Equality of Variances		t	df	Correlations		Mean Difference	Std. Error Diff.	95% CI of the difference	
	F	Sig.			One-sided p	Two-sided p			Lower	Upper
Equal variances assumed	0.172	0.679	-1.451	90	0.075	0.150	-0.286	0.197	-0.677	0.105
Equal Variances not assumed			-1,428	78.16	0.079	0.157	-0.286	0.200	-0.685	0.113

**A5.2.11. Group Statistics WTP (É Continente – Continente Seleção)**

		Mean	St. Deviation	N
WTP_All	É Continente	4.786	2.188	40
	Continente Seleção	5.496	2.881	52

**A5.2.12. Independent-Samples T-test for Willingness to Pay (É Continente– Continente)**

WTP_All	Levene's Test for Equality of Variances		t	df	Correlations		Mean Difference	Std. Error Diff.	95% CI of the difference	
	F	Sig.			One-sided p	Two-sided p			Lower	Upper
Equal variances assumed	0.225	0.639	-1.297	90	0.099	0.198	-0.710	0.547	-1.798	0.377
Equal Variances not assumed			-1.344	89.99	0.091	0.182	-0.710	0.528	-1.760	0.339

**A5.2.13. Group Statistics (Continente – Continente Seleção)**

		Mean	St. Deviation	N
PerceivedQuality_All	Continente	4.716	0.895	44
	Continente Seleção	4.966	1.155	52

**A5.2.14. Independent-Samples T-test for Perceived Quality (Continente– Continente Seleção)**

Perceived Quality_All	Levene's Test for Equality of Variances		t	df	Correlations		Mean Difference	Std. Error Diff.	95% CI of the difference	
	F	Sig.			One-sided p	Two-sided p			Lower	Upper
Equal variances assumed	1.409	0.238	-1.171	94	0.122	0.245	-0.250	0.214	-0.675	0.174
Equal Variances not assumed			-1.194	93.33	0.117	0.235	-0.250	0.209	-0.666	0.165

**A5.2.15. Group Statistics Brand Image (Contidente – Contidente Seleção)**

		Mean	St. Deviation	N
BrandImage_All	Contidente	4.606	0.826	44
	Contidente Seleção	4.436	0.883	52

**A5.2.16. Independent-Samples T-test for Brand Image (Contidente– Contidente Seleção)**

Brand Image_All	Levene's Test for Equality of Variances		t	df	Correlations		Mean Difference	Std. Error Diff.	95% CI of the difference	
	F	Sig.			One-sided p	Two-sided p			Lower	Upper
Equal variances assumed	0.100	0.752	0.969	94	0.167	0.335	0.170	0.176	-0.179	0.519
Equal Variances not assumed			.975	93.01	0.166	0.332	-0.170	0.175	-0.177	0.517

**A5.2.17. Group Statistics WTP (Contidente – Contidente Seleção)**

		Mean	St. Deviation	N
WTP_All	Contidente	4.549	1.390	44
	Contidente Seleção	5.496	2.881	52

**A5.2.18. Independent-Samples T-test for Brand Image (Contidente– Contidente Seleção)**

WTP_All	Levene's Test for Equality of Variances		t	df	Correlations		Mean Difference	Std. Error Diff.	95% CI of the difference	
	F	Sig.			One-sided p	Two-sided p			Lower	Upper
Equal variances assumed	4.532	0.036	-1.991	94	0.025	0.049	-0.9467	0.475	-1.891	-0.003
Equal Variances not assumed			-2.099	76.09	0.020	0.039	-0.9467	0.451	-1.845	-0.0482

**Appendix 6. Collinearity Diagnostics**

**A6.1. Coefficients<sup>a</sup>**

Model	Unstandardized coefficients		Standardized coefficients		t	Sig.	Correlations			Collinearity Statistics	
	B	Std. Error	Beta				Zero-Order	Partial	Part	Tolerance	VIF
(Constant)	1.956	1.015			1.927	0.056					
BI_All	0.164	0.249	0.065		0.661	0.510	0.208	0.057	0.055	0.704	1.421
PLTier	0.042	0.259	0.015		0.164	0.870	0.136	0.014	0.014	0.805	1.243
PQ_All	0.492	0.199	0.267		2.469	0.015	0.308	0.210	0.204	0.586	1.707

a. Dependent Variable: WTP\_All

## A6.2. Collinearity Diagnostics<sup>a</sup>

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions			
				(Constant)	Brand Image_All	PLTier	Perceived Quality_All
1	1	3.853	1.000	0.00	0.00	0.01	0.00
	2	0.094	6.418	0.03	0.06	0.83	0.01
	3	0.036	10.360	0.35	0.00	0.04	0.72
	4	0.017	14.937	0.62	0.94	0.12	0.27

a. Dependent Variable: WTP\_All

## Appendix 7. Descriptives

### A7.1. Sample Characterization

		É Continte	Continte	Continte Seleção	Total
<b>Respondents</b>	Number	40	44	52	136
	%	29.4%	32.4%	38.2%	100%
<b>Gender</b>	Female	19.9%	22.1%	25.0%	66.9%
	Male	9.6%	10.3%	11.8%	31.6%
	Non-Binary	0.0%	0.0%	0.0%	0.0%
	Prefer not to say	0.0%	0.0%	1.5%	1.5%
<b>Age</b>	Under 18	0.0%	0.0%	0.7%	0.7%
	18-24 years	15.4%	11.0%	22.8%	49.3%
	25-34 years	8.8%	13.2%	8.8%	30.9%
	35-44 years	2.2%	4.4%	3.7%	10.3%
	45-54 years	2.2%	0.7%	1.5%	4.4%
	55-64 years	0.7%	2.2%	0.7%	3.7%
	65+ years	0.0%	0.7%	0.0%	0.7%
<b>Nationality</b>	Portuguese	23.5%	30.9%	34.6%	89.0%
	Brazilian	0.7%	1.5%	1.5%	3.7%
	German	0.0%	0.0%	0.0%	0.0%
	Italian	1.5%	0.0%	0.7%	2.2%
	Other	3.7%	0.0%	1.5%	5.1%
<b>Level of Education</b>	Less than high school	0.7%	0.0%	0.0%	1%
	High School Graduate	1.5%	4.4%	2.9%	8.8%
	Undergraduate Degree	16.2%	12.5%	22.8%	51%
	Graduate Degree	7.4%	13.2%	11.0%	31.6%
	Ph.D. or Higher	3.7%	2.2%	0.7%	7%
	Prefer not to say	0.0%	0.0%	0.7%	0.7%
<b>Occupation</b>	Student	13.2%	5.1%	12.5%	30.9%
	Student-Worker	3.7%	5.1%	8.1%	16.9%
	Employed	11.0%	21.3%	15.4%	47.8%
	Unemployed	0.0%	0.0%	0.7%	0.7%
	Retired	0.0%	0.7%	0.0%	0.7%

	Prefer not to say	1.5%	0.0%	1.5%	2.9%
<b>Marital Status</b>	Single	20.6%	23.5%	31.6%	75.7%
	Married	7.4%	6.6%	4.4%	18.4%
	Divorced	0.0%	0.7%	0.0%	0.7%
	Widowed	0.0%	0.0%	0.0%	0.0%
	Prefer not to say	0.0%	0.0%	0.7%	0.7%
	Other	1.5%	1.5%	1.5%	4.4%
<b>Monthly Gross Income</b>	Less than 500€	4.4%	3.7%	7.4%	15.4%
	501€-1000€	6.6%	7.4%	5.1%	19.1%
	1001€-1500€	5.9%	9.6%	4.4%	19.9%
	1501€-2000€	2.9%	2.2%	6.6%	11.8%
	2001€-2500€	0.0%	1.5%	2.2%	3.7%
	More than 2500€	4.4%	7.4%	5.9%	17.6%
	Prefer not to say	5.1%	0.7%	6.6%	12.5%

## Appendix 7.2. Purchasing Frequency

		É Continente	Continente	Continente Seleção	Total
<b>Respondents</b>	Number	40	44	52	136
	%	29.40%	32.40%	38.20%	100%
<b>Purchasing Frequency</b>	One Time	2.20%	1.50%	2.90%	6.60%
	Two Times	6.60%	5.10%	4.40%	16.20%
	Three Times	5.10%	2.90%	4.40%	12.50%
	Four or more times	15.40%	22.80%	26.50%	64.70%

## Appendix 8. SPSS Output from the Hypotheses Testing

### Appendix 8.1. Hypotheses 1, 1a) and 1b)

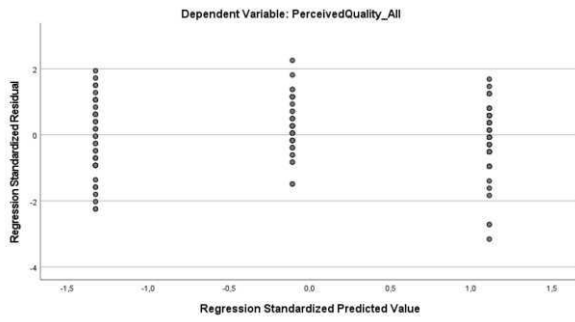
#### Appendix 8.1.1. Hypothesis 1

##### A8.1.1.1. Residual Statistics<sup>a</sup>

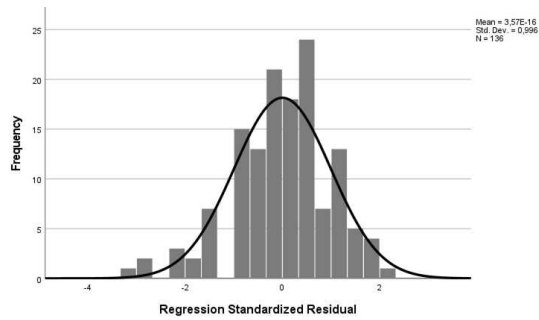
	Minimum	Maximum	Mean	Std. Dev	N
Predicted Value	3.796	5.083	4.496	0.528	136
Residual	-3.583	2.560	0.000	1.131	136
Std. Predicted Value	-1.326	1.111	0.000	1.000	136
Std. Residual	-3.155	2.255	0.000	0.996	136

a. Dependent Variable: PerceivedQuality\_All

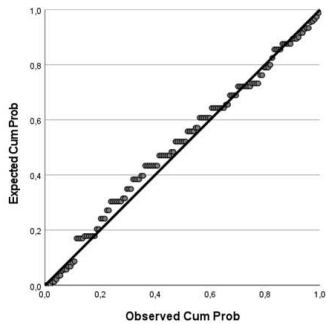
### A8.1.1.2. Scatterplot



### A8.1.1.3. Histogram



### A8.1.1.4. Normal Probability Plot



### A8.1.1.5. Descriptive Statistics

	Mean	St. Deviation	N
PLTier	2.088	1.249	136
PerceivedQuality_All	4.496	1.249	136

### A8.1.1.6. Correlations

		PerceivedQuality_All	PLTier
Pearson Correlation	PerceivedQuality_All	1.000	0.423
	PLTier	0.423	1.000
Sig. (1-tailed)	PerceivedQuality_All	-	<.001
	PLTier	0.000	-
N	PerceivedQuality_All	136	136
	PLTier	136	136

#### A8.1.1.7. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.423	0.179	0.173	1.136	1.834

a. Predictors: (constant), PLTier

b. Dependent Variable: PerceivedQuality\_All

#### A8.1.1.8. Variables Entered / Removed<sup>a</sup>

Model	Variables Entered	Variables Removed	Method
1	PLTier <sup>b</sup>	-	Enter

a. Dependent Variable: PerceivedQuality\_All

b. All requested Variables entered

#### A8.1.1.9. ANOVA<sup>a</sup>

Model		Sum of squares	df	Mean Square	F	Sig.
1	Regression	37.688	1	37.688	29.224	<0.001 <sup>b</sup>
	Residual	172.810	134	1.290		
	Total	210.498	135			

a. Dependent Variable: PerceivedQuality\_All

b. Predictors: (constant), PLTier

#### A8.1.1.10. Coefficients<sup>a</sup>

Model	Unstandardized coefficients		Standardized coefficients	t	Sig.	Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Zero-Order	Partial	Part	Tolerance	VIF
(Constant)	3.152	0.267		11.803	<.001					
PQ_All	0.644	0.119	0.423	5.406	<.001	0.423	0.423	0.423	1	1

a. Dependent Variable: PerceivedQuality\_All

### Appendix 8.1.2. Hypotheses 1 a)

#### A8.1.2.1. Ranks

Model	PLTier	N	Mean Rank	Sum of Ranks
PerceivedQuality_All	Continente	44	42.59	1874
	Continente Seleção	52	53.50	2782

### A8.1.2.2. Test Statistics

PerceivedQuality_All	
Mann-Whitney U	884.000
Wilcoxon W	1874.000
Z	-1.919
Asymp. Sig.(2-tailed)	0.055

a. Grouping Variables: PLTier

## Appendix 8.1.3. Hypothesis 1b)

### A8.1.3.1. Ranks

Model	PLTier	N	Mean Rank	Sum of Ranks
PerceivedQuality_All	É Contiente	40	32.34	1293.50
	Contiente	44	51.74	2276.50

### A8.1.3.2. Test Statistics

PerceivedQuality_All	
Mann-Whitney U	473.500
Wilcoxon W	1293.500
Z	-3.652
Asymp. Sig.(2-tailed)	<0.001

a. Grouping Variables: PLTier

## Appendix 8.2. Hypotheses 2, 2a) and 2b)

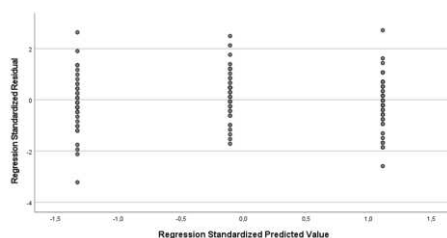
### Appendix 8.2.1. Hypothesis 2

#### A8.2.1.1. Residual Statistics<sup>a</sup>

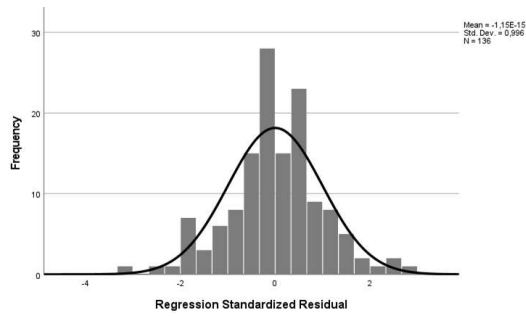
	Minimum	Maximum	Mean	Std. Dev	N
Predicted Value	4.266	4.525	4.407	0.106	136
Residual	-2.933	2.475	0.000	0.907	136
Std. Predicted Value	-1.326	1.111	0.000	1.000	136
Std. Residual	-3.220	2.718	0.000	0.996	136

a. Dependent Variable: BrandImage\_All

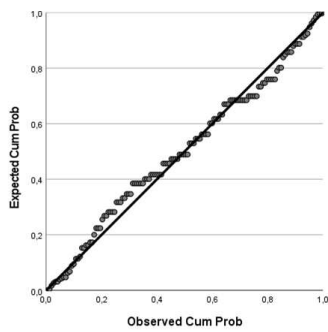
#### A8.2.1.2. Scatterplot



### A8.2.1.3. Histogram



### A8.2.1.4. Normal Probability Plot



### A8.2.1.5. Descriptive Statistics

	Mean	St. Deviation	N
BrandImage_All	4.407	0.913	136
PLTier	2.088	1.249	136

### A8.2.1.6. Correlations

		BrandImage_All	PLTier
Pearson Correlation	BrandImage_All	1.000	0.116
	PLTier	0.116	1.000
Sig. (1-tailed)	BrandImage_All	-	0.089
	PLTier	0.089	-
N	BrandImage_All	136	136
	PLTier	136	136

### A8.2.1.7. Model Summary<sup>b</sup>

Model	R	R square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.116 <sup>a</sup>	0.014	0.006	0.911	1.360

a. Predictors: (constant), PLTier

b. Dependent Variable: BrandImage\_All

#### A8.2.1.8. Variables Entered / Removed<sup>a</sup>

Model	Variables Entered	Variables Removed	Method
1	PLTier <sup>b</sup>	-	Enter

a. Dependent Variable: BrandImage\_All

b. All requested variables entered

#### A8.2.1.9. ANOVA<sup>a</sup>

Model		Sum of squares	df	Mean Square	F	Sig.
1	Regression	1.527	1	1.527	1.841	0.177
	Residual	111.127	134	0.829		
	Total	112.654	135			

a. Dependent Variable: BrandImage\_All

b. Predictors: (constant), PLTier

#### A8.2.1.10. Coefficients<sup>a</sup>

Model	Unstandardized coefficients		Standardized coefficients		t	Sig.	Correlations			Collinearity Statistics	
	B	Std. Error	Beta				Zero-Order	Partial	Part	Tolerance	VIF
(Constant)	4.136	0.214			19.314	<.001					
Brand Image_All	0.130	0.095	0.116		1.357	0.177	0.116	0.116	0.116	1.00	1.00

a. Dependent Variable: BrandImage\_All

### Appendix 8.2.2. Hypothesis 2 a)

#### A8.2.2.1. Descriptives (BrandImage\_All)

	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
É Continente	40	4.150	1.002	0.158	3.830	4.471	1.33	6.67
Continente	44	4.606	0.826	0.125	4.355	4.857	2.83	6.67
Continente Seleção	52	4.436	0.883	0.122	4.190	4.682	2.17	7.00
Total	136	4.407	0.913	0.783	4.252	4.562	1.33	7.00

### A8.2.2.2. Independent-Samples T-Test (Continente – Continente Seleção)

Brand Image_All	Levene's Test for Equality of Variances		Correlations				95% CI of the difference			
	F	Sig.	t	df	One-sided p	Two-sided p	Mean Difference	Std. Error Diff.	Lower	Upper
Equal variances assumed	0.100	0.752	0.969	94	0.167	0.335	0.170	0.176	-.176	-.519
Equal Variances not assumed			0.975	93.02	0.166	0.322	0.170	0.175	-.177	-.517

### Appendix 8.2.3. Hypothesis 2 b)

#### A8.2.3.1. Independent-Samples T-Test (É Continente – Continente)

Brand Image_All	Levene's Test for Equality of Variances		Correlations				95% CI of the difference			
	F	Sig.	t	df	One-sided p	Two-sided p	Mean Difference	Std. Error Diff.	Lower	Upper
Equal variances assumed	0.462	0.498	-2.3	82	0.012	0.025	-0.456	0.199	-.853	-.059
Equal Variances not assumed			-2.3	75.82	.013	.026	-.456	0.202	-.857	-.055

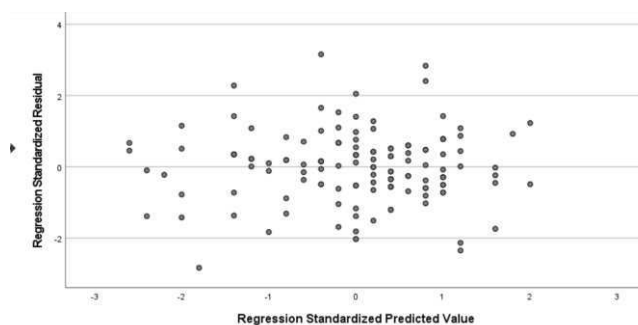
### Appendix 8.3. Hypothesis 3

#### A8.3.1. Residual Statistics<sup>a</sup>

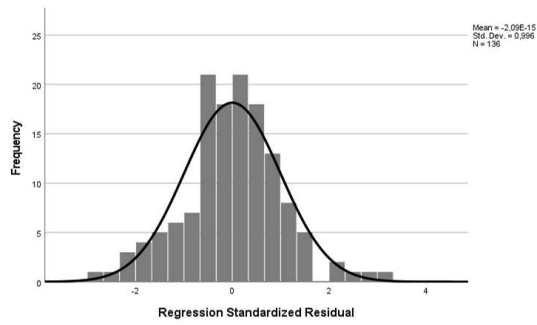
	Minimum	Maximum	Mean	Std. Dev	N
Predicted Value	3.146	5.379	4.407	0.485	136
Residual	-2.201	2.453	0.000	0.774	136
Std. Predicted Value	-2.600	2.005	0.000	1.000	136
Std. Residual	-2.833	3.156	0.000	0.996	136

a. Dependent Variable: BrandImage\_All

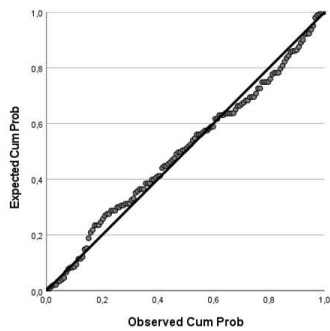
#### A8.3.2. Scatterplot



### A8.3.3. Histogram



### A8.3.4. Normal Probability Plot



### A8.3.5. Descriptive Statistics

	Mean	St. Deviation	N
BrandImage_All	4.407	0.913	136
PerceivedQuality_All	4.496	1.249	136

### A8.3.6. Correlations

		BrandImage_All	PerceivedQuality_All
Pearson	BrandImage_All	0.913	0.531
Correlation	PerceivedQuality_All	1.249	1.000
Sig.	BrandImage_All	-	<0.001
(1-tailed)	PerceivedQuality_All	0.000	-
N	BrandImage_All	136	136
	PerceivedQuality_All	136	136

### A8.3.7. Model Summary<sup>b</sup>

Model	R	R square	Adjusted R square	Std. Error of the estimate	Durbin-Watson
1	0.531 <sup>a</sup>	0.282	0.276	0.777	1.786

a. Predictors: (constant), PerceivedQuality\_All

b. Dependent Variable: BrandImage\_All

### A8.3.8. Variables Entered / Removed<sup>a</sup>

Model	Variables Entered <sup>b</sup>	Variables Removed	Method
1	Perceived Quality_All	-	Enter

a. Dependent Variable: BrandImage\_All

b. All requested Variables entered

### A8.3.9. ANOVA<sup>a</sup>

Model		Sum of squares	df	Mean Square	F	Sig.
1	Regression	31.745	1	31.745	52.576	<0.001 <sup>b</sup>
	Residual	80.909	134	0.604		
	Total	112.654	135			

a. Dependent Variable: BrandImage\_All

b. Predictors: (constant), PerceivedQuality\_All

### A8.3.10. Coefficients<sup>a</sup>

Model	Unstandardized coefficients		Standardized coefficients Beta	t	Sig.	Correlations			Collinearity Statistics	
	B	Std. Error				Zero-Order	Partial	Part	Toler.	VIF
Constant	2.661	0.250		10.649	<0.001					
Perceived Quality_All	0.388	0.054	0.531	7.251	<0.001	0.531	0.531	0.531	1	1

a. Dependent Variable: BrandImage\_All

## Appendix 8.4. Hypotheses 4, 4a) and 4b)

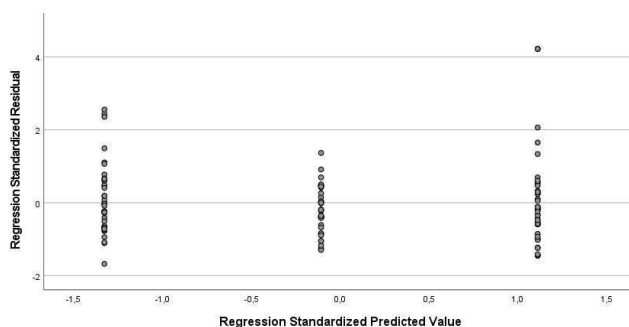
### Appendix 8.4.1. Hypothesis 4

#### A8.4.1.1 Residual Statistics<sup>a</sup>

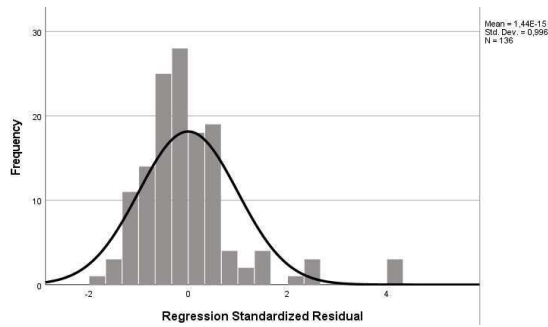
	Minimum	Maximum	Mean	Std. Dev	N
Predicted Value	4.567	5.327	4.981	0.312	136
Residual	-3.834	9.673	0.000	2.282	136
Std. Predicted Value	-1.326	1.111	0.000	1.000	136
Std. Residual	-1.675	4.222	0.000	0.996	136

a. Dependent Variable: WTP\_All

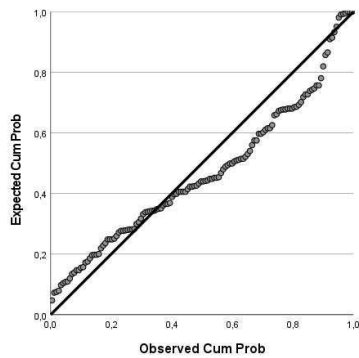
#### A8.4.1.2 Scatterplot



### A8.4.1.3. Histogram



### A8.4.1.4. Normal Probability Plot



### A8.4.1.5. Model Summary<sup>b</sup>

Model	R	R square	Adjusted R square	Std. Error of the estimate	Durbin-Watson
1	0.136 <sup>a</sup>	0.018	0.011	2.291	1.960

a. Predictors: (constant), PLTier

b. Dependent Variable: WTP\_All

### A8.4.1.6. Variables Entered / Removed<sup>a</sup>

Model	Variables Entered <sup>b</sup>	Variables Removed	Method
1	PLTier <sup>b</sup>	-	Enter

a. Dependent Variable: WTP\_All

b. All requested Variables entered

### A8.3.7. ANOVA<sup>a</sup>

Model		Sum of squares	df	Mean Square	F	Sig.
1	Regression	13.159	1	13.159	2.507	0.116 <sup>b</sup>
	Residual	703.263	134	5.248		
	Total	716.421	135			

a. Dependent Variable: WTP\_All

b. Predictors: (constant), PLTier

## Appendix 8.4.2. Hypothesis 4a)

### A8.4.2.1. Ranks

Model	PLTier	N	Mean Rank	Sum of Ranks
WTP_All	Continente	44	44.64	1964.00
	Continente Seleção	52	51.77	2692.00

### A8.4.2.2. Test Statistics<sup>a</sup>

	WTP_All
Mann-Whitney U	974.000
Wilcoxon W	1964.000
Z	-1.250
Asymp. Sig.(2-tailed)	0.211

a. Grouping Variables: PLTier

## Appendix 8.4.3. Hypothesis 4b)

### A8.4.3.1. Ranks

Model	PLTier	N	Mean Rank	Sum of Ranks
WTP_All	É Continente	40	42.24	1689.50
	Continente	44	42.74	1880.50

### A8.4.3.2. Test Statistics<sup>a</sup>

	WTP_All
Mann-Whitney U	869.500
Wilcoxon W	1689.500
Z	-0.094
Asymp. Sig.(2-tailed)	0.925

a. Grouping Variables: PLTier

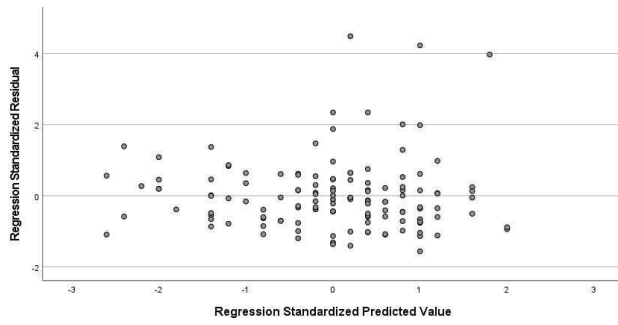
## Appendix 8.5. Hypothesis 5

### A8.5.1. Residual Statistics<sup>a</sup>

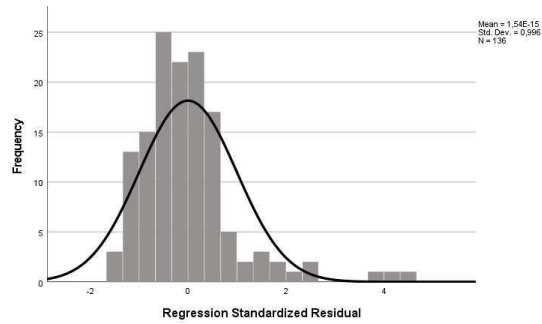
	Minimum	Maximum	Mean	Std. Dev	N
Predicted Value	3.138	6.402	4.981	0.708	136
Residual	-3.44	9.875	0.000	2.192	136
Std. Predicted Value	-2.600	2.005	0.000	1.000	136
Std. Residual	-1.565	4.489	0.000	0.996	136

a. Dependent Variable: WTP\_All

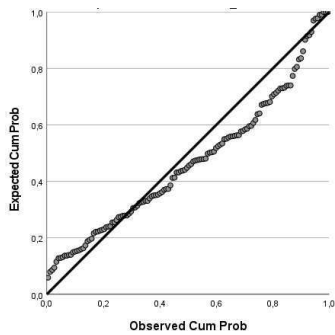
### A8.5.2. Scatterplot



### A8.5.3. Histogram



### A8.5.4. Normal Probability Plot



### A8.5.5. Descriptive Statistics

	Mean	St. Deviation	N
WTP_All	4.981	2.304	136
PerceivedQuality_All	4.496	1.249	136

### A8.5.6. Correlations

		BrandImage_All	PerceivedQuality_All
Pearson Correlation	WTP_All	1.000	0.308
	PerceivedQuality_All	0.308	1.000
Sig. (1-tailed)	WTP_All	-	<0.001
	PerceivedQuality_All	0.000	-
N	WTP_All	136	136
	PerceivedQuality_All	136	136

### A8.5.7. Model Summary<sup>b</sup>

Model	R	R square	Adjusted R square	Std. Error of the estimate	Durbin-Watson
1	0.308 <sup>a</sup>	0.095	0.088	2.200	1.877

a. Predictors: (constant), PerceivedQuality\_All

b. Dependent Variable: BrandImage\_All

### A8.5.8. Variables Entered / Removed<sup>a</sup>

Model	Variables Entered <sup>b</sup>	Variables Removed	Method
1	Perceived Quality_All	-	Enter

a. Dependent Variable: WTP\_All

b. All requested Variables entered

### A8.5.9. ANOVA<sup>a</sup>

Model		Sum of squares	df	Mean Square	F	Sig.
1	Regression	67.812	1	67.812	14.010	<0.001 <sup>b</sup>
	Residual	648.609	134	4.840		
	Total	716.421	135			

a. Dependent Variable: WTP\_All

b. Predictors: (constant), PerceivedQuality\_All

### A8.5.10. Coefficients<sup>a</sup>

Model	Unstandardized coefficients		Standardized coefficients	t	Sig.	Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Zero-Order	Partial	Part	Tolerance	VIF
(Constant)	2.429	0.707		3.433	<0.001					
Perceived Quality_All	0.568	0.152	0.308	3.743	<0.001	0.308	0.308	0.308	1	1

a. Dependent Variable: WTP\_All

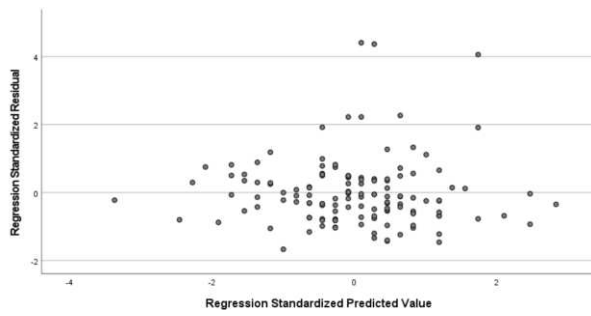
## Appendix 8.6. Hypothesis 6

### A8.6.1. Residual Statistics<sup>a</sup>

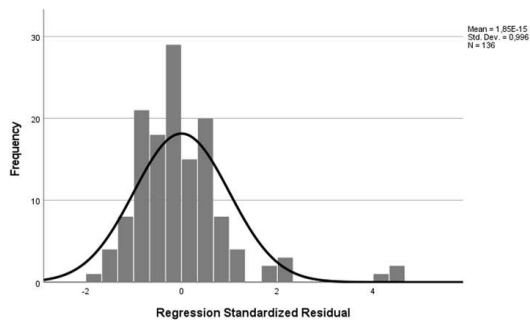
	Minimum	Maximum	Mean	Std. Dev	N
Predicted Value	3.365	6.344	4.981	0.480	136
Residual	-3.774	9.970	0.000	2.253	136
Std. Predicted Value	-3.365	2.839	0.000	1.000	136
Std. Residual	-1.669	4.409	0.000	0.996	136

a. Dependent Variable: WTP\_All

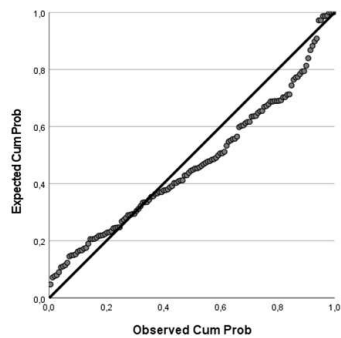
### A8.6.2. Scatterplot



### A8.6.3. Histogram



### A8.6.4. Normal Probability Plot



### A8.6.5. Descriptive Statistics

	Mean	St. Deviation	N
WTP_All	4.981	2.304	136
BrandImage_All	4.407	0.913	136

### A8.6.6. Correlations

		MAX_WTP	BrandImage_All
Pearson	WTP_All	1.000	0.208
Correlation	BrandImage_All	0.208	1.000
Sig.	WTP_All	-	.007
(1-tailed)	BrandImage_All	0.007	-
N	WTP_All	136	136
	BrandImage_All	136	136

**A8.6.7. Model Summary**

Model	R	R square	Adjusted R square	Std. Error of the estimate	Durbin-Watson
1	0.208 <sup>a</sup>	0.043	0.036	2.261	1.859

a. Predictors: (constant), BrandImage\_All  
 b. Dependent Variable: WTP\_All

**A8.6.8. Variables Entered / Removed<sup>a</sup>**

Model	Variables Entered <sup>b</sup>	Variables Removed	Method
1	BrandImage_All	-	Enter

a. Dependent Variable: WTP\_All  
 b. All requested Variables entered

**A8.6.9. ANOVA<sup>a</sup>**

Model		Sum of squares	df	Mean Square	F	Sig.
1	Regression	31.130	1	31.130	6.087	0.015 <sup>b</sup>
	Residual	685.291	134	5.114		
	Total	716.421	135			

a. Dependent Variable: WTP\_All  
 b. Predictors: (constant), BrandImage\_All

**A8.6.10. Coefficients<sup>a</sup>**

Model	Unstandardized coefficients		Standardized coefficients		Correlations			Collinearity Statistics		
	B	Std. Error	Beta	t	Sig.	Zero-Order	Partial	Part	Tolerance	VIF
(Constant)	2.664	0.959		2.779	< 0.006					
BrandImage All	0.526	0.213	0.208	2.467	< 0.015	0.208	0.208	0.208	1	1

a. Dependent Variable: WTP\_All

**Appendix 9. Full Model**

Run MATRIX procedure:

\*\*\*\*\* PROCESS Procedure for SPSS Version 4.2 beta \*\*\*\*\*

Written by Andrew F. Hayes, Ph.D. www.afhayes.com  
 Documentation available in Hayes (2022). www.guilford.com/p/hayes3

\*\*\*\*\*

Model: 6  
 Y : WTP\_All  
 X : PLTier  
 M1 : PQ\_All  
 M2 : BI\_All

Sample  
Size: 136

\*\*\*\*\*

OUTCOME VARIABLE:

PQ\_All

Model Summary

R	R-sq	MSE	F	df1	df2	p
,4231	,1790	1,2896	29,2242	1,0000	134,0000	,0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	3,1520	,2671	11,8026	,0000	2,6238	3,6802
PLTier	,6438	,1191	5,4059	,0000	,4082	,8793

Standardized coefficients

	coeff
PLTier	,4231

\*\*\*\*\*

OUTCOME VARIABLE:

BI\_All

Model Summary

R	R-sq	MSE	F	df1	df2	p
,5441	,2961	,5963	27,9671	2,0000	133,0000	,0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	2,7836	,2593	10,7337	,0000	2,2707	3,2966
PLTier	-,1467	,0894	-1,6413	,1031	-,3234	,0301
PQ_All	,4291	,0587	7,3057	,0000	,3130	,5453

Standardized coefficients

	coeff
PLTier	-,1318
PQ_All	,5866

\*\*\*\*\*

OUTCOME VARIABLE:

WTP\_All

Model Summary

R	R-sq	MSE	F	df1	df2	p
,3125	,0977	4,8973	4,7628	3,0000	132,0000	,0035

Model

	coeff	se	t	p	LLCI	ULCI
constant	1,9561	1,0153	1,9266	,0562	-,0523	3,9646
PLTier	,0424	,2587	,1637	,8702	-,4694	,5541
PQ_All	,4920	,1993	2,4691	,0148	,0978	,8862
BI_All	,1642	,2485	,6608	,5099	-,3274	,6558

Standardized coefficients

	coeff
PLTier	,0151
PQ_All	,2667
BI_All	,0651

\*\*\*\*\* TOTAL EFFECT MODEL \*\*\*\*\*

OUTCOME VARIABLE:

WTP\_All

Model Summary

R	R-sq	MSE	F	df1	df2	p
,1355	,0184	5,2482	2,5073	1,0000	134,0000	,1157

Model	coeff	se	t	p	LLCI	ULCI
constant	4,1862	,5387	7,7703	,0000	3,1207	5,2518
PLTier	,3804	,2402	1,5834	,1157	-,0947	,8555

Standardized coefficients

coeff	
PLTier	,1355

\*\*\*\*\* TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y \*\*\*\*\*

Total effect of X on Y

Effect	se	t	p	LLCI	ULCI	c'_cs
	,3804	,2402	1,5834	,1157	-,0947	,8555
						,1355

Direct effect of X on Y

Effect	se	t	p	LLCI	ULCI	c'_cs
	,0424	,2587	,1637	,8702	-,4694	,5541
						,0151

Indirect effect(s) of X on Y:

Effect	BootSE	BootLLCI	BootULCI
TOTAL	,3380	,1244	,1150
Ind1	,3168	,1215	,0982
Ind2	-,0241	,0393	-,1286
Ind3	,0454	,0567	-,0495

Completely standardized indirect effect(s) of X on Y:

Effect	BootSE	BootLLCI	BootULCI
TOTAL	,1204	,0418	,0439
Ind1	,1129	,0416	,0364
Ind2	-,0086	,0138	-,0450
Ind3	,0162	,0200	-,0188

Indirect effect key:

Ind1 PLTier -> PQ\_All -> WTP\_All  
 Ind2 PLTier -> BI\_All -> WTP\_All  
 Ind3 PLTier -> PQ\_All -> BI\_All -> WTP\_All

\*\*\*\*\* ANALYSIS NOTES AND ERRORS \*\*\*\*\*

Level of confidence for all confidence intervals in output:  
 95,0000

Number of bootstrap samples for percentile bootstrap confidence intervals:  
 5000

----- END MATRIX -----