Brand antiquity and value perception: Are customers willing to pay higher prices for older brands?

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ABSTRACT

Consumers' choices and price-finding decisions are complex processes determined by a series of factors, most of which have been exhaustively studied in the academic and professional literature. However, one factor seems to have passed basically unnoticed until now, namely the brand's antiquity explicitly announced in the companies' logos ("Since…", "Established in…" etc.). The present study is, to the best of our knowledge, the first to analyse how brand antiquity may be perceived by consumers as an indicator of quality —as only brands that sell quality products are supposed to survive in a competitive market in the long run— and to have modelled an experiment to empirically test whether this perception results in a willingness to pay higher prices for products whose brands advertise the company's antiquity than those which do not. Our results reveal that brand antiquity, indeed, has a statistically significant effect on consumers' price setting.

1. Introduction

Customers are influenced by a series of different factors, such as price (one of the most studied ones[1]), brand value, design, packaging, font, etc. when confronted with the decision of what to consume and how much to spend (Solomon, White, Dahl, Zaichkowsky, & Polegato, 2017).

Previous research studies have shown that price is a very significant variable for retailers in selecting their suppliers, however, other variables, such as product and service quality offered, has been showing an increasing weighting in purchasing decision processes (Giovanis, Tomaras, & Zondiros, 2013). Thus, market researchers and organizations have increased their consumer research efforts to identify those crucial factors that influence consumer decisions (Mirabi, Akbariyeh, & Tahmasebifard, 2015).

All of these elements have been extensively studied in literature. Yet, one relevant feature seems to have passed so far unnoticed by scholars and brand managers, despite the heavy use that companies – apparently unconsciously – make of it: *brand antiquity*. Brand antiquity is the year

that the brand/company was founded and which reflects its age (or longevity)[2] which is often explicitly advertised by the company, including it in its logo in the form of "Since…", "Established…", or similar.[3] To the best of our knowledge, no scientific paper has yet been devoted to studying this question from an empirical perspective and only a few have done so from a theoretical one. As Schmidt, Hennigs, Wuestefeld, Langner, and Wiedmann (2015:104) state: "Recently, the study of brand heritage and the question of how past, present and future merge to create corporate brand image have gained growing interest in both management research and managerial practice. Nevertheless, in-depth knowledge of the antecedents and outcomes of corporate brand heritage is still scarce". A similar point of view is held by Otubanjo and Adegbile (2019:7) when affirming that "contributions to the field of brand management are predominantly hung on the management of the concept, the cultural considerations underpinning the adoption of the phenomenon within the international business context, an understanding of the concept and the inevitable link between an organisation's historical status brand identity and consumer appeal" (Balmer et al.,

[1] Hill (2013) has addressed the issue in relation not only to cost but also to the value generated for consumers, who, as he confirms, do not always look for the cheapest price, but are willing to pay more, when the guarantee is greater, the perceived value is higher and/or there is a clearly differentiated service provided.

[2] We understand that brand age is a characteristic of any company, while brand antiquity is exclusive of those companies which have surpassed a certain age (as in the etymology of the term *longevity*). Thus, throughout the present paper we will use the term *brand antiquity* to signal an age that is explicitly advertised by the company.

[3] Apparently, the decision to include information about the year of creation in the logo often takes place after having reached a milestone in the company's history (such as the commemoration of the 25th, 30th, 50th, 100th anniversary), but not out of a specifically promotional or strategic purpose.

2011:1538). Yet, while all these contributions are laudable, none seems to have explicitly dealt with the step-by-step mechanism through which one specific element of brand heritage, such as brand antiquity (or, more generally speaking, longevity), affects consumers' perceptions of brand value (as Olsen et al., 2014) argue, brand longevity is often considered as a variable in studies of branding, yet there is still little understanding of how it is managed and sustained). Or, in other words, the question why customers should be willing to pay more for products produced by older brands remains so far basically unexplained. Hence it wonders about the price, that while the literature has increasingly centered its attention on tangential questions related to brand heritage (Balmer and Hudson, 2013: 348) the core relation between brand antiquity and price elasticity seems to have passed so far – at least from an empirical perspective – unnoticed among scholars. Accordingly, the present paper aims to fill this gap, not only by being one of the first attempts to reflect on the importance of brand longevity from a theoretical point of view, but by being the first attempt to test empirically whether brand antiquity is perceived by consumers as an indicator for quality directly revealed in their readiness to pay a higher price (in comparison to the same product without the brand antiquity being explicitly advertised).

For this purpose (i.e. *to establish the theoretical and empirical relationship that exists between brand antiquity and customers' willingness to pay higher prices for their products*), after reviewing the literature in order to set an adequate theoretical framework in which to embed our research, we present the hypothesis to be tested, followed by the design and methodology of our model. The results of the empirical analysis are then exposed, and the main conclusions analysed. The conclusions obtained will be useful not only for the scientific community, but will also help managers of companies in designing their price strategies by explicitly acknowledging brand antiquity. We conclude by pointing out some possible limitations of our research and highlighting potential future lines of research to deepen and contrast our results, which we believe to be very fruitful, especially for marketers and brand managers.

2. Theoretical framework and hypothesis

2.1. Theoretical framework

This research seeks to establish the relationship that exists between the age of a brand and the price customers are willing to pay for it. Reality is contemplated from two sides: supply (the company) and what it aims to transmit by including the established date in its logotype; and from the customer's point of view (demand), including its response to the former. We are therefore dealing with three different but interlinked concepts: brand, logotype and antiquity.

A brand, according to the American Marketing Association (1960), is a "*name, term, sign, symbol or design, or a combination of them intended to identify the goods and services of one seller or group of sellers and to differentiate them from those of other sellers.*"

If we take this broad definition of a brand into account, an attribute that differentiates one product from another, or as a tool of distinction from competitors, its origin can be traced back centuries. In ancient Egypt, brick manufacturers carved symbols into their bricks to differentiate them from competitors, as did the Romans (who also labelled *amphorae* which contained top-end olive oil, *garum* and other delicacies; in Europe, medieval brotherhoods demanded artisans label their products in order to protect themselves against competition, in the same way that cattle are tagged, or wine barrels imprinted in the modern day (Batey, 2013). It is known that German sword-makers from Solingen managed to obtain a copy of their main competitor's mark (Toledo in Spain), which they then applied to swords of lower quality in order to smear their competitor's reputation (Cohen, 2002). Tags and marks are closely related to logotypes, that is, graphical symbols that represent a brand (Müller, Kocher, & Crettaz, 2013). Firms or organisations (supply side) are those in charge of defining their own strategy and, as Séguéla (1991) correctly indicates, it should be built over the brand and not the

product. Moreover, it should be the result of unifying three key elements: physical (what the brand produces), character (its lifespan) and the style. Consequently, brands are constructed around what Dornelles and Tena (2011) denominate as "brand personality", a series of attributes or characteristics of our personality which we tend to associate with individuals (such as sympathy, youth, credibility) and which reside within our collective and personal unconscious (Martins, 1999), continuously adding value. It might seem like a simple exercise, if it were only about associating attributes to a brand so individuals could have a given perception of the latter, but it is not, provided that the number of characteristics or attributes is finite. Kotler and Keller (2011) state that there should not be more than three, otherwise, the differentiated strategy would be lost.

Among the aspects that define brand value are design, packaging and price, all of which are affected by brand antiquity, as is shown by the fact that companies' celebration of certain (critical) milestones have explicitly advertised this fact, combining it with their logotype: thus, for example, Nestlé advertised the 100 years of the company's foundation; Cartier ran a campaign celebrating the centenary of their entry into the U.S. American market; Levi's promoted the 50th anniversary of a specific model of trousers; while Coca-Cola promoted the 100th "birthday" of their iconic "contour" bottle (Vivas, 2015).[4] As can be observed, brand antiquity can be used to reinforce the brand image relating it to the longevity of the company itself, of certain products, of specific designs or of the entry into a given market. By doing so, companies project facts from the past to the contemporary context, that is, they define corporate brand heritage by linking the notion of past, present and future (Balmer, Powell, Elving, Blombäck, & Brunninge, 2009; Urde, Greyser, & Balmer, 2007; Hudson, 2011). As Balmer (2017:1467) convincingly affirms, "time is progressively viewed as an important dimension of corporate brands and identities. This is especially true of the past apropos corporate heritage, The omni-temporality notion is also a key facet of corporate marketing philosophy and has come with a realisation that the marketing philosophy (particularly corporate marketing) can be meaningfully informed not only by the present and future but also the past" (cf. also Balmer, 2017). Hence, it might be concluded that brand antiquity is a necessary – although not sufficient – component to qualify a brand for heritage status (Hudson, 2011:1538).

Thus, firms have a complicated task ahead of them, as they set out to place their brand (Ries et al., 1986), conquering consumer minds and ensuring that the previously mentioned attributes dominate their thoughts against the competition. Said placement can either exist or be perceived (Baños González and Rodríguez García, 2012); alternatively, firms can seek to find it, making the former a reality and the latter a desired situation. All efforts are oriented, as Bassat (2017) indicates, towards "obtaining a positive image", given that it is "one of the firm's most important intangibles".

Firms that set out to define a marketing strategy will study consumer behaviour, identifying market opportunities and making the best decisions regarding the variables in the marketing mix, which directly impact the income statement. Price, being one of those variables, is closely related to the perceived value. This is due to the fact that the relationship between price and quality is formed when consumers take price as an indicator of the product's quality (Schiffman & Kanuk, 2005). Therefore, many factors will influence a customer's decision to pay a higher price (Pride & Ferrell, 2004), whether it is the quality perceived or the urgency.

Having looked at the brand and price, we must address the other determinant that affects our study, the brand's age. The bibliographic

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[4] And this relation is bidirectional, as the celebration of a milestone might, in turn, also affect price (for example, with special offers to commemorate the event), packaging (i.e. Kellogg's' reissued tin boxes of their original packaging to celebrate the company's centenary) and products (e.g., by issuing a special/limited product or edition of a product to commemorate the reaching of a milestone).

research undertaken suggests that the age of a brand is an attribute positively valued by the consumer through two means: (1) A firm's longevity may act as an extrinsic cue of the firm's quality, and/or (2) availability of a longer track record of an older firm may allow consumers to make more precise prediction of the firm's future quality (Desai et al., 2008). It is a component of brand heritage which is in turn a dimension of brand identity (Urde et al., 2007).[5] Hence our objective is to transmit the importance of being able to visualize that information in the logotype, along the lines of the proposition made by Blombäck and Brunninge (2009: 413) according to which (explicit) references to corporate history in marketing communications will affect corporate brand image among external audiences). The customer's willingness to pay a higher price will thus be a direct result of the quality they perceive as a result of the favourable image transmitted to them.

The added value directly associated with the age of a brand is also valid when we analyse the conclusions of authors such as Aaker and Joachimsthaler (2000) and Ewing, Jevons, and Khalil (2009). The former establishes a lifecycle similar to a product or business lifecycle, but oriented towards the brand, while the latter, along the same lines, places the decline phase as a natural phase. The same idea is shared by Ormerod (2007), claiming that all businesses will fail at some point and linking it to the idea of a company's inevitable demise. Nevertheless, lifecycle models do not reference years, but instead portray the brand's, product's, business's, etc. strategic phase and enable "rejuvenescence" as defined by Pringle (2008), which does not accept brand death to be inevitable, especially within brands.[6] Pringle (2008) cites a number of examples that coincide with several found in the empirical research, such as the case of Kit Kat.

Very much like individuals, age perception does not always correspond with real age (Barak & Schiffman, 1981), explaining why a very old brand might not be perceived as old or long-lived, but instead as something valuable which transmits credibility and confidence. Zajonc and Markus (1982) reinforce that idea by portraying familiarity as something positive, backing their idea with the theory of human evolution and the confidence it transmits, while Maaninou and Huaman (2016) have empirically tested that perceived brand longevity may differ from real brand age depending on four factors: brand expertise, brand globalness, brand pioneering and brand authenticity.

Keller (1999) and Lehu (2004), both aligned with our hypothesis, link old age (the moment the brand portrays signs of vulnerability), not to the number of years, but to the brand's current strategic moment. For this reason, older brands, like Nike, are often recognised and perceived to be more valuable than newer ones. For Lehu (2004), elderliness arrives as soon as consumers begin to overlook a certain brand, not because their products decline in quality, but because they seem obsolete in light of newer and more innovative ones.

Brands continuously seek to revitalise and maintain themselves as "fresh, vital and relevant" (Merrilees, 2005) to avoid death. Brand rejuvenation – or their revival and re-launch, either becoming retro brands or modern brands with a historical background (Preece, Kerrigan, & O'Reilly, 2019: 332) – can happen in many ways: through its logotype (Keller, Parameswaran, & Jacob, 2011) or through its prescribers (Huber, Meyer, Vogel, Weihrauch, & Hamprecht, 2013), among others. And as Preece et al. (2019:330) have convincingly proved by analysing the case of a serial brand such as the James Bond movies, "there is a need for both continuity and change in order to secure brand longevity". It is wise to remember that with regards to logotypes, our investigation only takes brands into consideration and not nostalgia branding strategies, visual identity or *retro*-marketing. Instead, we look

at the value the brand creates for the consumer, which, very much like its history and age, has value embedded in its roots, which translates into confidence, quality and loyalty, later moved to price. As a result, the analysis introduces several brands that have updated their logo,[7] despite not altering their age and name, something deemed vital within the marketing mix (Collins, 1977). In relation to the prescribers, Dornelles and Tena (2011) or Aggarwal and McGill (2007) rightly imply a relationship with a series of variables such as age, credibility or sympathy. Such personality creates an emotional identity for the brand, which, in turn, triggers positive feelings and sensations among consumers towards said brand (Schiffman & Kanuk, 2005).

Few authors have dealt with theme of the age of a brand. Recently, Zhang, Kashmiri, and Cinelli (2019) have approached it in depth but only from the perspective of ethical dilemmas, recognising the brand to be a relevant factor for the consumer when it comes to evaluating a product or service. This has shown that brands that have survived for a long time are more capable of being forgiven in light of an ethical dilemma regarding its image,[8] a situation that is entirely due to the phenomenon in which consumers relate longevity to high quality. Simon and Sullivan (1993) also confirmed the existence of several advantages for older brands, pointing out that consumers rely on information about the age of a brand when making inferences about the quality and credibility of lesser-known brands.

It is not surprising, therefore, that our hypothesis is better supported among the elderly population. Wilcox (2015) makes allusions to the impact that a brand has on an individual's mind, creating emotional attachments, or memories, which will intensify as an individual gets older and amid personal experience or through marketing and advertising triggering positive unconscious connections in the mind. Along the same lines, the model on human memory by psychologists Atkinson and Shiffrin (1968) establishes three types of memory: sensory memory, short-term memory and long-term memory. These three types of memory take place in a sequential order, firstly receiving a stimulus, then remembering it in the short term, and finally (if has not been forgotten) becoming embroidered in our long-term memory where an infinite amount of information can be found and accessed by individuals for the rest of their lives. Noted publicist Bassat (2017) relates this last type of memory to a warehouse full of little boxes containing feelings, which he refers to as "brands", and assures that the more contact we have with them, the higher the probability that they will be chosen during a purchase. As a result, the older the individual, the more contact he or she will have had with an old brand, which in turn explains said reaction, which Biswas (1992) denominates as familiarity with the brand and shows it has great impact on the perception of price. Kaur, Mustika, and Sjabadhyni (2018) call it affection and relate it to loyalty. However, Merchant and Rose (2013), as well as Hudson and Balmer (2013), have convincingly pointed out the role of (vicarious) nostalgia on brand heritage, arguing that people tend to feel positive emotional attachment to events that occurred before they were born, that is, of periods that an individual did actually not live through.

2.2. Hypothesis

As explained in the previous section, we argue that the consumer should perceive brands that advertise their antiquity including the reference "since" or "established" in their logos, –usually those which

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[5] This explains why brand antiquity, as a determinant of brand heritage and identity, becomes a key element of value perception in companies ascribed to the luxury segment (Wuestefeld, Hennigs, Schmidt, & Wiedmann, 2012; Wiedmann, Hennigs, Schmidt, & Wuestefeld, 2012).

[6] The noted Spanish economist Román Perpiñá Grau (1929) coined the term demology (from δημος and λογος) for the study of companies' lifecycle.

[7] A closely related question, which however cannot be discussed here in detail for reasons of space, is the evolution of the design of the logotypes in order to try to combine the heritage element with an image of modernity. Thus, for example, Audi has basically not changed its logotype – the four intertwined circles – since the company's foundation in 1909, while Peugeot has repeatedly redesigned its logotype (a rampant lion) in order to give it a more "contemporary" image.

[8] Child labour or poor working conditions in production chains, failure to comply with environmental legislation, etc.

can boast a long history– as a feature of quality, the underlaying reason being that in the long run only quality products are supposed to survive in a competitive market. This should be reflected in their willingness to pay higher prices for goods of those companies with a long history than for those whose antiquity is not explicitly announced. According to this reasoning, in the present paper we have modelled an experiment in which we manipulated the variable *brand antiquity* in order to test the following six hypotheses:

2.2.1. Main hypothesis

Hypothesis 1. A consumer will be willing to pay higher prices for products whose brands show the company's antiquity, according to the null and alternative hypotheses specified as:

$$H_0 : \mu_{ij} = \mu_{ij'} H_1 : \mu_{ij} \neq \mu_{ij'}$$

where i represents the different products/brands, j a logo with the indication of its antiquity and j' a logo without indication of brand antiquity.

2.2.2. Additional hypothesis (derived from the previous)

Hypothesis 2. These differences should be observable despite the sector of ascription of the product.

$$H_0 : \mu_{kj} = \mu_{kj'} H_1 : \mu_{kj} \neq \mu_{kj'}$$

where k represents the different sectors, j a logo with the indication of its antiquity and j' a logo without indication of brand antiquity.

Hypothesis 3. Older people should be more sensitive towards brand antiquity and, thus, should be willing to pay higher prices for products of those companies who advertise their antiquity, for two reasons (see above, 2.1): because older people should have a higher awareness of the importance of age; and because older brands are more likely to evoke positive nostalgic feelings.

$$H_0 : \mu_{lj} = \mu_{lj'} H_1 : \mu_{lj} \neq \mu_{lj'}$$

where l represents the different age categories, j a logo with the indication of its antiquity and j' a logo without indication of brand antiquity.

Hypothesis 4. The previous should hold true throughout all genders, that is, the gender factor should not influence in the perception of brand antiquity as a factor for higher pricing.

$$H_0 : \mu_{mj} = \mu_{mj'} H_1 : \mu_{mj} \neq \mu_{mj'}$$

where m represents the different gender options, j a logo with the indication of its antiquity and j' a logo without indication of brand antiquity.

Hypothesis 5. Other personal factors, such as the income level, should also not influence the perception of brand antiquity as a factor for higher pricing.

$$H_0 : \mu_{nj} = \mu_{nj'} H_1 : \mu_{nj} \neq \mu_{nj'}$$

where n represents the different income levels, j a logo with the indication of its antiquity and j' a logo without indication of brand antiquity.

3. Methodology and design

Our study uses an experimental research design to confront subjects with different scenarios in order to determine whether brand antiquity is perceived as a determinant factor of product/brand value, that is, whether consumers are willing to pay more for products of older brands than for the same product when the brand's logo does not include the year of its

foundation, as well as the other hypotheses set out in Section 2.2.

Four sectors were chosen in this first study, because they were the ones that were the most conclusive in the pre-test. Also three of them related to everyday life – which we considered more proper for this first study, due to its greater transversality over the sample – and the fourth being the luxury sector, where we assumed that the impact could be greater as, according to Wuestefeld et al. (2012), it is precisely in the luxury industry where consumers are increasingly aware of the brand's origin and heritage.

For this purpose, we created a dataset of thirty images of brands ascribed to four different sectors – namely, *restaurants/catering, food, fashion/clothing* and *luxury* – belonging to companies that include the year of creation in their brand's logo. Each of these pictures was then replicated deleting the reference to the foundational year, as shown in Image 1.

The set of images was then shuffled in order to mix pictures with and without reference to the brand antiquity but assuring that no subject would be presented with the same image/product twice (i.e. with and without age reference). We took this decision, which implies renouncing to intrasubject analysis, in order to avoid the risk of the subjects finding out the purpose of the study which, due to a "learning effect", would have biased our results.[9]

The pictures were then used to design an online survey in which, after answering three demographic variables (age, gender and income level)[10] – which will serve as control variables for testing the additional hypotheses – participants had to respond to thirty questions asking them how much they would be willing to pay for a specific product of the brand represented in the picture (as a reminder: half of them showing the brand antiquity, the other half not). In order to facilitate the answer and accelerate the overall time required to respond to the survey, the subjects only had to tick one out of eight price intervals. The data was collected using *Google Forms*. The participants were asked to collaborate in a research study about pricing but were not told – and thus we assume that they were not aware – that we manipulated the variable *brand antiquity*.

The sample size was set at 482 subjects residing in Spain which, in terms of the Spanish population ≥25 years allows for inferences with less than a five per cent error (i.e., with 95 per cent accuracy), each of which had to price 30 products of a specific brand (15 with and 15 without reference to the brand's antiquity). Out of the 482 subjects, 46.7 per cent were male, 52.5 per cent were female and 0.8 per cent selected the option *Other non-binary/I prefer not to answer*. The distribution by age and monthly income is shown in Figs. 1 and 2.

As has already been stated, the products/brands which were presented to the participants corresponded to four different sectors, as shown in Fig. 3.

As can be observed, the Restaurant/catering sector is almost equal to the size of all the others; this is due to the fact, that it actually consists of two subcategories: elaborated products (such as certain dishes) and non-elaborated products (e.g. a can of beer), a differentiation that was easiest to check in the other sectors, so that in the end all the categories are of approximately the same size. Finally, it should be pointed out that we have included both national (i.e. Spanish) and international brands in the survey in order to minimise the risk of any possible bias. An overview of the thirty exact questions, including the specific product and brand logos is presented in Annex 2.

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[9] Subjects asked after the first test runs declared they were not aware of the fact that brand antiquity was the variable being manipulated.

[10] *Age* was measured in seven categories (18–24 years, 25–34 years, 35–44 years, 45–54 years, 55–64 years, 65–74 years, ≥75 years); *Gender* was divided into three possible options (Male, female, other non-binary/I prefer not to answer) while *Income/month* was broken down into eight levels (≤€499, €500–€999, €1000–€1499, €1500–€1999, €2000–€2499, €2500–€2999, €3000–€4999, ≥€5000).

4. Results and discussion

In order to test for our hypotheses, the study applies a between-subject one factor ANOVA. As has already been stated, intra-subject analysis has been rejected in order to avoid the subjects finding out that brand antiquity is the manipulated variable. A problem that has to be dealt with when running ANOVA analysis is the possible unfulfillment of the requisites of normality and equal variances between groups. While not satisfying the former usually does not imply major consequences, as the ANOVA is a robust enough procedure to provide significant results even with non-normal distributions, the latter can prove to be an important shortcoming of the obtained outputs, heavily limiting their validity. Although an important number of groups of our sample do not present equal variances, we have, however, mitigated this problem by making sure that both groups to be compared in our main hypothesis (*Hypothesis 1*) have exactly the same size ($n_1 = n_2 = 241$). Nevertheless, in order to overcome any possible bias or imperfection of the estimators, we have opted to run, instead of the standard ANOVA, both the Welch and Brown-Forsyth models, which were especially designed for circumstances of heteroscedasticity (i.e, for dealing with situations in which the groups to be compared do not present equal variances), as they are based on F-distribution.[11]

Table 1 presents the results obtained when doing the ANOVA analysis in order to test *Hypothesis 1*, that is, checking for each of the thirty questions referred to different brands/products present statistically significant differences between the mean price categories that the subjects declared they would be willing to pay for them, while manipulating for the variable *with brand antiquity/without brand antiquity*.

Out of the 30 products included in the survey, 26 present statistically significant differences (i.e., the null hypothesis is rejected) at the 5 percent level between the mean prices marked by the subjects of the sample in the case of the brands with reference to the antiquity in comparison to those without it. The cases of non-significance differences between means are: a portion of *churros* (fried-dough pastry) in San Ginés, a beer in Malakatín, Nestle's® KitKat and a pair of Levis'® blue jeans. However, it has to be noted that out of these 26 cases, four (fried peppers in Casa Duque, a box of Godiva® chocolates, a watch by Certina® and a diamond ring by Yanes®)[12] have to be discharged due to the fact that the mean prices set by the participants in the survey are lower in the case of the brands with antiquity than in those without it, thus contradicting our model.[13] Yet, it is notable that in 22 out of 30 examples through all four sectors, the main hypothesis of our study (*Hypothesis 1*) is confirmed. In other words, our study shows that in nearly three-quarters (73.3 per cent) of the examples included in the sample, the participants in our experiment are willing to pay a statistically significant higher price for products whose logos advertise their brand antiquity. We might, thus, conclude that brand antiquity – despite the limitations that will be commented on later – is a very important factor of value perceived by consumers that, accordingly, should be taken more into consideration by marketers and brand managers.

Regarding *Hypothesis 2*, the ANOVA analysis aggregating the price estimations by sector of ascription, results in the following output (Table 2).

As can be observed, in all four sectors the average price estimation is higher in those cases in which the companies' logo includes the reference to its antiquity. The Welch and Brown-Forsyth ANOVA indicate that these differences are statistically significant at the one per cent level. Thus, we may conclude that, as the null hypothesis is rejected, *Hypothesis 2* has been confirmed in the case of Spain.

Hypothesis 3. Hypothesis 3 checks whether age is relevant in explaining the different prices marked by the subjects of the sample when we manipulated for the variable brand antiquity. We apply a one factor ANOVA although, in order to facilitate the interpretation of the results, they are presented summarised. Accordingly, Table 3 shows how many of the 30 products/brands tested by each age segment presents statistically significant differences.

It is evident that younger people tend to care much less (i.e. are less influenced in their willingness to spend) by the antiquity of the brand, and – if at all – then mainly by products of the group of restaurant/catering and fashion/clothing. However, there seems to be a less clear tendency in the upper classes of age. Thus, the null hypothesis can be rejected, validating *Hypothesis 3*.

Next, *Hypothesis 4* assesses whether there is a statistically significant difference in the obtained responses if compared by gender (Table 4).

The results indicate that there is no significant difference between the men and women, pricing a series of products depending on brand antiquity. Actually, both groups obtain nearly identical mean prices in each category (men 3.25 and 2.64, women 3.29 and 2.68). The third option (*Other non-binary/I prefer not to answer*) although clearly different (2.06 and 2.30 respectively), is too small in size (n = 2, i.e. 60 answers) to be significant. Thus, we might conclude that the null hypothesis is rejected only for the third group, but not for the case of men/women, and that *Hypothesis 4* holds true.

Finally, *Hypothesis 5* checks for possible disparities between levels of income. As can be observed in Table 5, when grouping subjects by monthly income levels, nearly insignificant differences are obtained, so that – at least for samples of the size employed in this study – the null hypothesis cannot be rejected, that is, we could conclude that income does not play a significant role in altering the subjects' perception of brand antiquity as a symbol of quality, thus validating *Hypothesis 5*.

Regarding the income level, note should be taken that – with the exception of the interval €2000–€2499, which does not present significant differences between both groups of reference – all mean prices increase steadily according the rise of the monthly income level, both in the case of the brand with and without brand antiquity (cf. Fig. 4), thus fitting microeconomic theory. At the same time, and also as expected, the mean values of the brand with reference to its antiquity are always higher than those without, two features that reinforce the robustness and coherence of the results of our study.

5. Conclusions, limitations and outlook

Consumer's choices and price-finding decisions are complex processes determined by a variety of factors, most of which have been exhaustively studied in the academic and professional literature. The present paper has aimed to complement these studies by analysing a factor so far neglected, namely, the role of brand antiquity in consumers' value perception and price setting as well as the different mechanisms through which this can take place.

The empirical model – designed to test whether this perception results in the willingness to pay higher prices for products whose brands advertise the company's antiquity explicitly vs those which do not – the results of which are presented in the second part of the paper, allows a series of important conclusions to be drawn. First, the evidence shows that brand antiquity is indeed a statistically significant factor (at the 5

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[11] The results of the Levene statistics that check for the homogeneity of variance and of the standard ANOVA for *Hypothesis 1* are presented in Annex 3. The comparison of the results of the standard ANOVA with those of the Welch and of the Brown-Forsyth show that either procedure (i.e. assuming homoscedasticity or heteroscedasticity) results in identical levels of significance. This proves the robustness of the standard ANOVA, even when the requisite of equal variances is not fulfilled, as long as the groups to be compared are identical size. And it also reinforces the results obtained, which are validated with identical significances through different methods of statistical contrasts. For this reason, and in order not to enlarge excessively Annex 3, we have not included the results of the standard ANOVA for the rest of the hypotheses contrasted, as the levels of significance are, again, identical to those of the Welch and Brown-Forsyth ANOVA presented in the main text.

[12] Curiously, two out of these four cases belong to the luxury sector, probably pointing towards the fact that in these cases other brand values exercise a stronger influence in the subjects' price setting than brand antiquity.

[13] Both these cases are presented in lightly shadowed background in Table 2.

per cent level) in over 73 per cent of the products/brands tested. In other words, in nearly three-quarters of the products tested, the participants in the experiment – unaware of the fact that we were manipulating the variable *brand antiquity* – set up higher prices for those products whose brands explicitly advertised their antiquity than the same products when the brand did not include the antiquity in their logo. These results are consistent for different econometric specifications and fit the theoretical framework previously developed, as well as the (scarce) literature on the topic. It is also remarkable that the results are confirmed when aggregating the products by market sectors and when testing for different income levels of the test subjects: participants with higher levels of monthly income on average set higher prices, yet the difference depending on brand antiquity persists. The results also show that the subject's age might be a determining factor of value perception, as older people – in comparison to the younger segments – might be less inclined to value novelty and, instead, rank antiquity higher, probably because older brands might evoke positive nostalgic feelings (a fact regularly used in advertising campaigns, for example recycling old ads, reusing old jingles, etc.). Finally, as we had expected, the effect of brand antiquity on value perception and, thus, on price setting, is unrelated to gender.

Altogether, we may conclude that the results obtained imply a significant advancement in the understanding of a hitherto basically ignored element that intervenes in consumers' price finding mechanisms and brand value perceptions, namely brand antiquity (i.e. a company's longevity which is explicitly included in its logo). This should be considered carefully by those in marketing departments and, especially, by brand managers.

Yet our results, however conclusive and robust, do also present some limitations that need to be pointed out, although we believe that they can be easily overcome in future research. In the first place, our sample refers exclusively to Spanish consumers; thus it should be replicated for other countries, cultures and ethnicities in order to obtain not only a broader but also a sharper picture of the effect of brand antiquity on consumers' value perception. Second, our product selection only considers products of four different market sectors; our results would be enriched by not only increasing the number of products but also of sectors. Third and last, in this first stage of our research, we 'simply' segmented our samples in brands with and without explicit reference to their antiquity. Nevertheless, we consider that our article may have opened a line of research not only to the replication in other contexts, but also to measure the impact of brand antiquity in a way that allows for a finer tuning by establishing the critical age onwards from which *age* is perceived as *antiquity* (in the sense of a positive brand attribute) and allowing the exact price/antiquity elasticity to be calculated by products and/or sectors.

Appendix A

See Figs. 1–4, Tables 1–5 and Box 1.

Image 1. How much would you be willing to pay for a t-shirt by this company? (followed by either the first or the second brand logo).
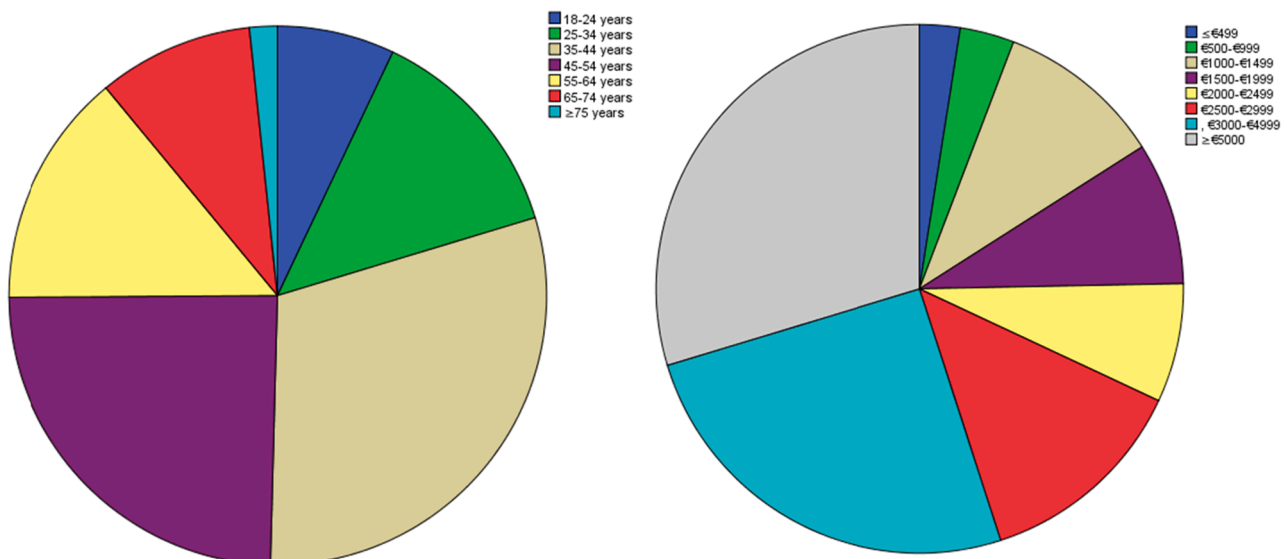
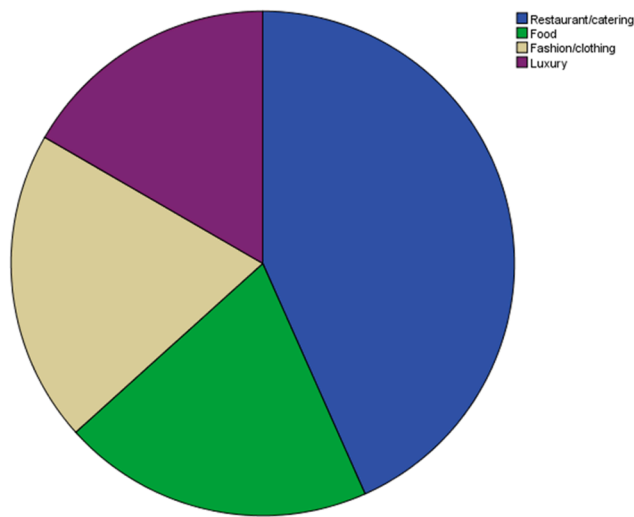**Figs. 1 and 2.** Subjects by age and by monthly income level.
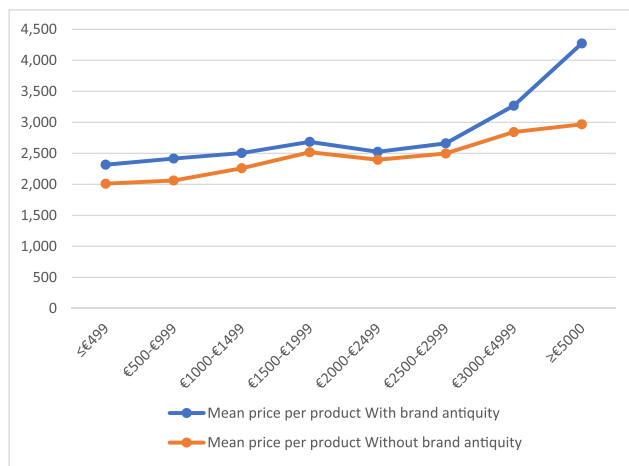
Fig. 3. Sectors included.

Fig. 4. Price vs income level.
Source: own elaboration.

Table 1
Results of ANOVA by product/brand with vs without brand antiquity.

	Product/Brand	Mean price per product		Welch Brown-Forsythe
Restaurant/catering	Croquettes/7 Portes	With brand antiquity	4.444	46.401
		Without brand antiquity	3.112	(0.000)
	Salad Casa Culleretes	With brand antiquity	2.458	5.841
		Without brand antiquity	2.119	(0.016)
	Spicy potatoes La Pondala	With brand antiquity	3.548	53.801
		Without brand antiquity	2.290	(0.000)
	Calamari Los Galayos	With brand antiquity	3.373	75.530
		Without brand antiquity	2.137	(0.000)
	Octupus Manolito	With brand antiquity	3.411	3.826
		Without brand antiquity	3.145	(0.050′)
	Asparagus Montes	With brand antiquity	3.494	54.246
		Without brand antiquity	2.411	(0.000)
	Churros San Ginés™	With brand antiquity	2.469	1.969
			2.602	(0,161)

Table 1 (*continued*)

	Product/Brand	Mean price per product		Welch Brown-Forsythe
		Without brand antiquity		
	Beer Malacatín™	With brand antiquity	4.680	2.179
		Without brand antiquity	4.386	(0.141)
	Soda Casa Alberto™	With brand antiquity	4.498	6.651
		Without brand antiquity	3.946	(0.010)
	Paella Casa Clemencia	With brand antiquity	3.805	49.791
		Without brand antiquity	2.647	(0.000)
	Fried peppers Casa Duque™	With brand antiquity	2.900	6.925
		Without brand antiquity	3.249	(0.009)
	Fried eggs Las Escobas™	With brand antiquity	3.697	48.529
		Without brand antiquity	2.722	(0.000)
	Beer El Bolinche™	With brand antiquity	4.124	12.652
		Without brand antiquity	3.411	(0.000)
Food	Rice (1 kg) SOS™	With brand antiquity	3.627	79.527
		Without brand antiquity	2.054	(0.000)
	Chocolates Godiva®	With brand antiquity	1.938	6.761
		Without brand antiquity	2.278	(0.010)
	Jar of mayonnaise Ybarra™	With brand antiquity	3.000	113.185
		Without brand antiquity	1.257	(0.000)
	KitKat Nestlé®	With brand antiquity	2.826	1.722
		Without brand antiquity	2.610	(0.190)
	Packet of cookies Fontaneda™	With brand antiquity	4.896	22.704
		Without brand antiquity	4.000	(0.000)
	Tin of cocoa Cola-Cao®	With brand antiquity	2.199	6.317
		Without brand antiquity	1.817	(0.012)
Fashion/clothing	T-shirt Gant®	With brand antiquity	3.332	19.088
		Without brand antiquity	2.527	(0.000)
	Polo-shirt Burberry®	With brand antiquity	1.320	29.616
		Without brand antiquity	1.946	(0.000)
	T-shirt Adidas®	With brand antiquity	3.506	22.027
		Without brand antiquity	2.697	(0.000)
	Shirt Abercrombie & Fitch®	With brand antiquity	2.751	8.976
		Without brand antiquity	2.257	(0.003)
	Polo shirt Lacoste®	With brand antiquity	3.253	68.689
		Without brand antiquity	1.801	(0.000)
	Blue jeans Levis®	With brand antiquity	2.303	3.372
		Without brand antiquity	2.573	(0.067)
Luxury	Watch Tissot®	With brand antiquity	4.307	30.844
		Without brand antiquity	3.046	(0.000)
	Watch Certina®	With brand antiquity	1.909	10.347
		Without brand antiquity	2.415	(0.001)
	Handbag Versace®	With brand antiquity	4.149	26.495
		Without brand antiquity	2.913	(0.000)
	Diamond ring Yanes®	With brand antiquity	2.888	6.066
		Without brand antiquity	3.432	(0.014)
	Watch Eterna®	With brand antiquity	3.315	81.742
		Without brand antiquity	1.631	(0.000)

In brackets: level of significance. Asymptotically F distributed.
Source: own elaboration.

Table 2
Results of ANOVA by sector with vs without brand antiquity.

Sector of ascription	Mean price per product		Welch Brown-Forsythe
Restaurants/catering	With brand antiquity	3.564	147.983
	Without brand antiquity	2.980	(0.000)
Food	With brand antiquity	3.081	98.883
	Without brand antiquity	2.336	(0.000)
Fashion/clothing	With brand antiquity	2.744	41.085
	Without brand antiquity	2.300	(0.000)
Luxury	With brand antiquity	3.314	40.774
	Without brand antiquity	2.687	(0.000)

In brackets: level of significance. Asymptotically F distributed.
Source: own elaboration.

Table 3
ANOVA by subjects' age.

Age range	Number of statistically significant differences (0.05-level) out of 30
18–24 years	7
25–34 years	5
35–44 years	21
45–54 years	15
55–64 years	20
65–74 years	18
≥75 years	N.S.

N.S.: not significant due to insufficient responses.
Source: own elaboration.

Table 4
ANOVA by gender: with vs without brand antiquity.

Gender	Mean price per category		Welch Brown-Forsythe
Men	With brand antiquity	3.251	152.195
	Without brand antiquity	2.649	(0.000)
Women	With brand antiquity	3.290	162.677
	Without brand antiquity	2.688	(0.000)
Other non-binary/No answer	With brand antiquity	2.067	0.509
	Without brand antiquity	2.300	(0.477)

In brackets: level of significance. Asymptotically F distributed.
Source: own elaboration.

Table 5
ANOVA by subjects' level of income.

Sector of ascription	Mean price per product		Welch Brown-Forsythe
≤€499	With brand antiquity	2.317	3.266
	Without brand antiquity	2.011	(0.072)
€500–€999	With brand antiquity	2.416	4.965
	Without brand antiquity	2.062	(0.026)
€1000–€1499	With brand antiquity	2.505	6.727
	Without brand antiquity	2.260	(0.010)
€1500–€1999	With brand antiquity	2.685	2.307
	Without brand antiquity	2.518	(0.129)
€2000–€2499	With brand antiquity	2.525	1.302
	Without brand antiquity	2.397	(0.254)
€2500–€2999	With brand antiquity	2.661	3.638
	Without brand antiquity	2.498	(0.057)
€3000–€4999	With brand antiquity	3269	41.084
	Without brand antiquity	2.844	(0.000)
≥€5000	With brand antiquity	4.273	419.594
	With brand antiquity	2.968	(0.000)

In brackets: level of significance. Asymptotically F distributed.
Source: own elaboration.

Box 1
Data collection and sample: technical details.

Population: Residents in Spain 18 years and older.

Survey method: The survey was done with Google Forms.

Pre-test: A previous questionnaire was carried out on ten people.

Sample: 482 valid surveys.

Error: < 5% (inferences with less than a five per cent error)

Accuracy: 95 per cent.

Specific dates on which the field work was carried out: From 21st December 2019 to 10th January 2020, making it coincide with the Christmas period, in which consumers are more inclined to buy and go out for lunch/dinner.

Sampling procedure: The sampling was random, collecting the answers mainly through:

- Social networks of professional contacts (LinkedIn). The user who shared the survey has 1953 contacts (August 2020). The survey had 7281 views, thanks to 59 interactions (mostly users with more than 500 contacts). It is important to note that in this professional network, there are students, the active population in search of employment, self-employed or employed workers and retirees.
- WhatsApp to heterogeneous groups (schoolmates, university, sports or leisure activities, school parents of children of different ages, groups of housewives or the elderly …)
- Emails to students (undergraduate and graduate) and graduated students.

Appendix B

SECTOR		QUESTION	LOGO	PRICE RANGE
Restaurant/Catering	1	How much would you be willing to pay for a serving of croquettes in "Restaurant 7 Portes"?		< 6 € Between 6 and 6,49 € Between 6,50 and 6,99 € Between 7 and 7,49 € Between 7,5 and 7,99 € Between 8 and 8,49 € Between 8,5 and 8,99 € >9 €
Restaurant/Catering	2	How much would you be willing to pay for a salad in "Casa Culleretes"?		< 8 € Between 8 and 9,99 € Between 10 and 11,99 € Between 12 and 13,99 € Between 14 and 15,99 € Between 16 and 17,99 € Between 18 and 19,99 € >20 €
Restaurant/Catering	3	How much would you be willing to pay for a serving of spicy potatoes in "La Pondala"?		< 6 € Between 6 and 6,49 € Between 6,50 and 6,99 € Between 7 and 7,49 € Between 7,5 and 7,99 € Between 8 and 8,49 € Between 8,5 and 8,99 € >9 €
Restaurant/Catering	4	How much would you be willing to pay for a serving of calamari in "Los Galayos"?		< 10 € Between 10 and 11,99 € Between 12 and 13,99 € Between 14 and 15,99 € Between 16 and 17,99 € Between 18 and 19,99 € Between 20 and 21,99 € >22 €
Restaurant/Catering	5	How much would you be willing to pay for a serving of octopus in "Manolito"?		< 10 € Between 10 and 11,99 € Between 12 and 13,99 € Between 14 and 15,99 € Between 16 and 17,99 € Between 18 and 19,99 € Between 20 and 21,99 € >22 €
Restaurant/Catering	6	How much would you be willing to pay for a serving of asparagus with prawns in "Restaurante Montes"?		< 10 € Between 10 and 11,99 € Between 12 and 13,99 € Between 14 and 15,99 € Between 16 and 17,99 € Between 18 and 19,99 € Between 20 and 21,99 € >22 €
Restaurant/Catering	7	How much would you be willing to pay for a churros with chocolate in "Restaurante Montes"?		< 3 € Between 3 and 4,99 € Between 5 and 6,99 € Between 7 and 8,99 € Between 9 and 10,99 € Between 11 and 12,99 € Between 13 and 14,99 € >15 €
Restaurant/Catering	8	How much would you be willing to pay for a can of beer in "Malacatín"?		< 1,10 € Between 1,10 and 1,24 € Between 1,25 and 1,39 € Between 1,40 and 1,54 € Between 1,55 and 1,69 € Between 1,70 and 1,84 € Between 1,85 and 1,99 € >2 €
Restaurant/Catering	9	How much would you be willing to pay for a can of soda in "Casa Alberto"?		< 1,10 € Between 1,10 and 1,24 € Between 1,25 and 1,39 € Between 1,40 and 1,54 € Between 1,55 and 1,69 € Between 1,70 and 1,84 € Between 1,85 and 1,99 € >2 €
Restaurant/Catering	10	How much would you be willing to pay for a serving of paella in "Casa Clemencia"?		< 8 € Between 8 and 9,99 € Between 10 and 11,99 € Between 12 and 13,99 € Between 14 and 15,99 € Between 16 and 17,99 € Between 18 and 19,99 € >20 €

Restaurant/Catering	11	How much would you be willing to pay for a peppers with ventresca salad in "Casa Duque"?		< 8 € Between 8 and 9,99 € Between 10 and 11,99 € Between 12 and 13,99 € Between 14 and 15,99 € Between 16 and 17,99 € Between 18 and 19,99 € >20 €
Restaurant/Catering	12	How much would you be willing to pay for a serving of eggs with ham in "Las escobas"?		< 8 € Between 8 and 9,99 € Between 10 and 11,99 € Between 12 and 13,99 € Between 14 and 15,99 € Between 16 and 17,99 € Between 18 and 19,99 € >20 €
Restaurant/Catering	13	How much would you be willing to pay for a can of beer in "El Boliche"?		< 1,10 € Between 1,10 and 1,24 € Between 1,25 and 1,39 € Between 1,40 and 1,54 € Between 1,55 and 1,69 € Between 1,7 and 1,84 € Between 1,85 and 1,99 € >2 €
Food	14	How much would you be willing to pay for 2 kilos of SOS rice?		< 2,20 € Between 2,20 and 2,39 € Between 2,40 and 2,59 € Between 1,60 and 2,79 € Between 2,80 and 2,99 € Between 3 and 3,19 € Between 3,20 and 3,39 € >3,40 €
Food	15	How much would you be willing to pay for a box of Godiva chocolates?		< 22 € Between 22 and 23,99 € Between 24 and 25,99 € Between 26 and 27,99 € Between 28 and 29,99 € Between 30 and 31,99 € Between 32 and 33,99 € >34 €
Food	16	How much would you be willing to pay for a jar of 450 ml of Ybarra mayonnaise?		< 6,50 € Between 6,50 and 6,99 € Between 7 and 7,49 € Between 7,50 and 7,99 € Between 8 and 8,49€ Between 8,50 and 8,99 € Between 9 and 9,5 € >9,5 €
Food	17	How much would you be willing to pay for a pack of 5 Kit Kat?		< 1,70 € Between 1,70 and 1,99 € Between 2 and 2,29 € Between 2,30 and 2,59 € Between 2,60 and 2,89€ Between 2,90 and 3,19 € Between 3,20 and 3,49 € >3,5 €
Food	18	How much would you be willing to pay for a bod of 400 gr of Fontaneda cookies?		< 0,80 € Between 0,80 and 1,09 € Between 1,10 and 1,39 € Between 1,40 and 1,69 € Between 1,70 and 1,99€ Between 2 and 2,29 € Between 2,30 and 2,59 € >2,6 €
Food	19	How much would you be willing to pay for a can of Coca Cola (33cl)"?		< 0,70 € Between 0,70 and 0,79 € Between 0,8 and 0,89 € Between 0,9 and 0,99 € Between 1 and 1,09€ Between 1,10 and 1,19 € Between 1,20 and 1,29 € >1,30 €
Fashion/ Clothing	20	How much would you be willing to pay for a Gant shirt?		< 22 € Between 22 and 23,99 € Between 24 and 25,99 € Between 26 and 27,99 € Between 28 and 29,99€ Between 30 and 31,99 € Between 32 and 33,99 € >34 €

Fashion/ Clothing	21	How much would you be willing to pay for a Burberry polo shirt?	BURBERRY ESTABLISHED 1856	< 120 € Between 120 and 139,99 € Between 140 and 159,99 € Between 160 and 179,99 € Between 180 and 199,99€ Between 200 and 219,99 € Between 220 and 239,99 € >240€
Fashion/ Clothing	22	How much would you be willing to pay for an Adidas shirt?	ADIDAS Originals THE BRAND WITH THE 3 STRIPES SINCE 1949	< 17 € Between 17 and 19,99 € Between 20 and 21,99 € Between 22 and 23,99 € Between 24 and 25,99€ Between 26 and 27,99 € Between 28 and 29,99 € >30 €
Fashion/ Clothing	23	How much would you be willing to pay for an Abercrombie shirt?	Abercrombie & Fitch TRADEMARK SINCE 1892	< 17 € Between 17 and 19,99 € Between 20 and 21,99 € Between 22 and 23,99 € Between 24 and 25,99€ Between 26 and 27,99 € Between 28 and 29,99 € >30 €
Fashion/ Clothing	24	How much would you be willing to pay for a Lacoste polo shirt?	LACOSTE LIFE IS A BEAUTIFUL SPORT SINCE 1933	< 80 € Between 80 and 89,99 € Between 90 and 99,99 € Between 100 and 109,99 € Between 110 and 119,99€ Between 120 and 129,99 € Between 130 and 139,99 € >140€
Fashion/ Clothing	25	How much would you be willing to pay for a Levis jeans?	Levi's AMERICA'S ORIGINAL JEANS SINCE 1850	< 80 € Between 80 and 89,99 € Between 90 and 99,99 € Between 100 and 109,99 € Between 110 and 119,99€ Between 120 and 129,99 € Between 130 and 139,99 € >140€
Luxury	26	How much would you be willing to pay for a Tissot watch?	TISSOT SWISS WATCHES SINCE 1853	< 180 € Between 180 and 189,99 € Between 190 and 199,99 € Between 200 and 209,99 € Between 210 and 219,99€ Between 220 and 229,99 € Between 230 and 239,99 € >240€
Luxury	27	How much would you be willing to pay for a Certina watch?	CERTINA 1888	< 280 € Between 280 and 299,99 € Between 300 and 319,99 € Between 320 and 339,99 € Between 340 and 359,99€ Between 360 and 379,99 € Between 380 and 399,99 € >400€
Luxury	28	How much would you be willing to pay for a Versace handbag?	VERSACE JEANS COUTURE	< 200 € Between 200 and 229,99 € Between 230 and 259,99 € Between 260 and 289,99 € Between 290 and 319,99€ Between 320 and 349,99 € Between 350 and 379,99 € >380€
Luxury	29	How much would you be willing to pay for a Versace handbag?	YANES	< 2000 € Between 2000 and 2229,99 € Between 2300 and 2599,99 € Between 2600 and 2899,99 € Between 2900 and 3199,99 € Between 3200 and 3499,99 € Between 3500 and 3799,99 € >3800 €
Luxury	30	How much would you be willing to pay for a Yanes ring	ETERNA SINCE 1856	< 500 € Between 500 and 599,99 € Between 600 and 699,99 € Between 700 and 799,99 € Between 800 and 899,99 € Between 900 and 999,99 € Between 1000 and 1099,99 € >1100€

Appendix C. Questions

Annex 3a: Test of Homogeneity of Variances				
Price category				
Question	Levene Statistic	df1	df2	Sig.
1	21,691	1	480	,000
2	3,817	1	480	,051
3	34,374	1	480	,000
4	131,132	1	480	,000
5	,564	1	480	,453
6	60,180	1	480	,000
7	1,199	1	480	,274
8	,081	1	480	,777

(continued on next page)

(*continued*)

Annex 3a: Test of Homogeneity of Variances

Price category

Question	Levene Statistic	df1	df2	Sig.
9	,330	1	480	,566
10	34,183	1	480	,000
11	,063	1	480	,802
12	28,148	1	480	,000
13	,311	1	480	,577
14	155,464	1	480	,000
15	4,501	1	480	,034
16	444,575	1	480	,000
17	5,967	1	480	,015
18	10,387	1	480	,001
19	14,244	1	480	,000
20	16,578	1	480	,000
21	50,220	1	480	,000
22	22,586	1	480	,000
23	,871	1	480	,351
24	178,765	1	480	,000
25	2,021	1	480	,156
26	7,885	1	480	,005
27	13,270	1	480	,000
28	19,588	1	480	,000
29	3,846	1	480	,050
30	226,198	1	480	,000

Annex 3b: ANOVA

Price category

PREGUNTA		Sum of Squares	df	Mean Square	F	Sig.
1	Between Groups	213,778	1	213,778	46,401	,000
	Within Groups	2211,469	480	4,607		
	Total	2425,247	481			
2	Between Groups	8,234	1	8,234	5,841	,016
	Within Groups	676,680	480	1,410		
	Total	684,915	481			
3	Between Groups	190,475	1	190,475	53,801	,000
	Within Groups	1699,369	480	3,540		
	Total	1889,844	481			
4	Between Groups	184,241	1	184,241	75,530	,000
	Within Groups	1170,871	480	2,439		
	Total	1355,112	481			
5	Between Groups	8,498	1	8,498	3,826	,051
	Within Groups	1066,249	480	2,221		
	Total	1074,747	481			
6	Between Groups	141,330	1	141,330	54,246	,000
	Within Groups	1250,573	480	2,605		
	Total	1391,902	481			
7	Between Groups	2,124	1	2,124	1,969	,161
	Within Groups	517,776	480	1,079		
	Total	519,900	481			
8	Between Groups	10,459	1	10,459	2,179	,141
	Within Groups	2303,510	480	4,799		
	Total	2313,969	481			
9	Between Groups	36,699	1	36,699	6,651	,010
	Within Groups	2648,548	480	5,518		
	Total	2685,247	481			
10	Between Groups	161,496	1	161,496	49,791	,000
	Within Groups	1556,855	480	3,243		
	Total	1718,351	481			
11	Between Groups	14,639	1	14,639	6,925	,009
	Within Groups	1014,672	480	2,114		
	Total	1029,311	481			
12	Between Groups	114,575	1	114,575	48,529	,000
	Within Groups	1133,261	480	2,361		
	Total	1247,836	481			
13	Between Groups	61,378	1	61,378	12,652	,000
	Within Groups	2328,598	480	4,851		
	Total	2389,975	481			
14	Between Groups	298,010	1	298,010	79,527	,000
	Within Groups	1798,689	480	3,747		
	Total	2096,699	481			

(continued)

Annex 3b: ANOVA						
Price category						
PREGUNTA		Sum of Squares	df	Mean Square	F	Sig.
15	Between Groups	13,950	1	13,950	6,761	,010
	Within Groups	990,440	480	2,063		
	Total	1004,390	481			
16	Between Groups	365,975	1	365,975	113,185	,000
	Within Groups	1552,050	480	3,233		
	Total	1918,025	481			
17	Between Groups	5,610	1	5,610	1,722	,190
	Within Groups	1564,017	480	3,258		
	Total	1569,627	481			
18	Between Groups	96,797	1	96,797	22,704	,000
	Within Groups	2046,407	480	4,263		
	Total	2143,203	481			
19	Between Groups	17,560	1	17,560	6,317	,012
	Within Groups	1334,407	480	2,780		
	Total	1351,967	481			
20	Between Groups	78,083	1	78,083	19,088	,000
	Within Groups	1963,519	480	4,091		
	Total	2041,602	481			
21	Between Groups	47,305	1	47,305	29,616	,000
	Within Groups	766,697	480	1,597		
	Total	814,002	481			
22	Between Groups	78,890	1	78,890	22,027	,000
	Within Groups	1719,129	480	3,582		
	Total	1798,019	481			
23	Between Groups	29,380	1	29,380	8,976	,003
	Within Groups	1571,112	480	3,273		
	Total	1600,492	481			
24	Between Groups	254,149	1	254,149	68,689	,000
	Within Groups	1776,000	480	3,700		
	Total	2030,149	481			
25	Between Groups	8,766	1	8,766	3,372	,067
	Within Groups	1247,867	480	2,600		
	Total	1256,633	481			
26	Between Groups	191,734	1	191,734	30,844	,000
	Within Groups	2983,776	480	6,216		
	Total	3175,510	481			
27	Between Groups	30,880	1	30,880	10,347	,001
	Within Groups	1432,498	480	2,984		
	Total	1463,378	481			
28	Between Groups	184,241	1	184,241	26,495	,000
	Within Groups	3337,793	480	6,954		
	Total	3522,033	481			
29	Between Groups	35,604	1	35,604	6,066	,014
	Within Groups	2817,095	480	5,869		
	Total	2852,699	481			
30	Between Groups	341,983	1	341,983	81,742	,000
	Within Groups	2008,166	480	4,184		
	Total	2350,149	481			

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