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Article

Reframing the value proposition for sugar brands: Policy, regulation, and consumer behavior in the Spanish Retail Market

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Abstract: The objective of this research paper is to investigate potential avenues for value creation in the refined sugar market for domestic use, a market currently facing a critical juncture. The growing concerns about the health impacts of sugar have resulted in a notable decline in demand. Furthermore, changes in European Union regulations have introduced additional operators into the Spanish market, increasing competition and amplifying the need for innovation. This study examines how brands can respond to these challenges by enhancing their value proposition through market segmentation, targeted marketing strategies, and adaptive packaging solutions. To achieve this objective, we have conducted market research, which involved an in-depth interview, and a questionnaire distributed to 402 individuals responsible for household purchases. The findings suggest potential approaches for addressing the needs of consumers with a focus on health and well-being, while simultaneously enhancing the durability of products, thus facilitating greater brand differentiation. Furthermore, the study underscores the pivotal role of public policies and regulatory frameworks in influencing consumer behavior and market dynamics. Policies promoting sugar alternatives, labelling requirements, and packaging innovations have been demonstrated to impact brand strategies and consumer preferences. By aligning with these policy-driven shifts, companies can enhance their positioning in a mature and competitive market. This research contributes to the existing literature on brand value in commodity markets by integrating insights into the impact of regulation and consumer segmentation. Our recommendations emphasize the importance of marketing strategies that are informed by an understanding of the policy context, which not only enhances brand equity but also promotes sustainable growth in the retail sugar industry.

Keywords: perceived value; refined sugar; consumer behavior; public policy; market regulation; brand strategy

1. Introduction

The preferences of consumers are undergoing a transformation, driven by an increase in concerns about health, a reduction in caloric intake, and a heightened focus on diet (Volpp et al., 2023). These factors are collectively responsible for substantial shifts in the food market. The sugar market is being directly influenced by these evolving consumer values. Despite its continued use as a fundamental ingredient in a wide range of food products, including biscuits, chocolate, and cereals, sugar has increasingly been associated with adverse health effects, particularly in more developed societies. The prevailing view is that sugar contributes to obesity, dental care, and other health problems, which are frequently associated with the increased prevalence of metabolic disorders such as diabetes. The popular media frequently associates dietary sugars with these health issues (van den Berg, 2011), although other factors, such as sedentary lifestyles and unhealthy diets, are also crucial in explaining

such conditions (Beltrán-Carrillo et al., 2022). These perceptions are effectively impacting sugar demand.

In accordance with the pivotal role of public policies and regulatory frameworks in influencing consumer behavior and market dynamics (Mah et al., 2019), alterations to regulations within the EU have resulted in an influx of new operators in the sugar market. This has intensified competition, necessitating that brands adapt to the evolving regulatory environment. The introduction of health labelling, sugar taxes, and sustainable packaging policies is transforming the market. The introduction of health labels and sugar taxes has been particularly significant in terms of raising awareness of the potential health risks associated with sugar consumption (Kelly et al., 2024). Similarly, regulations on sustainable packaging have encouraged the adoption of environmentally friendly practices. These shifts in policy exert an influence on consumer behavior, promoting healthier and more eco-conscious purchasing decisions (Nguyen, 2023). Consequently, sugar brands are compelled to adapt to these developments to maintain their competitive advantage.

Furthermore, the influence of sugar taxes on consumer behavior and purchasing decisions is well documented, with research indicating the effectiveness of these policies in influencing consumption patterns (van Meurs et al., 2024). The role of health labeling in influencing consumer perceptions is also of great importance, as nutritional information helps guide healthier choices and fosters greater consumer trust (Prada et al., 2021). The demand for sustainable packaging is growing, with brands being encouraged to adopt more environmentally conscious practices to align themselves with consumer values (Pineda et al., 2024). Steinhauser and Hamm (2018) also emphasize the importance of aligning brand strategies with these regulatory shifts to enhance consumer trust and reinforce market positioning.

It is also essential to identify new growth opportunities in this highly competitive market. This could include exploring niche markets, developing innovative new products, or creating more sustainable packaging solutions. It is crucial to assess the impact of price and brand on purchasing decisions for sugar. While there have been studies on the economic aspects of the sugar market (Alonso and Arcila, 2014; Mapama, 2013), there is a lack of research focusing on consumer needs within this rapidly evolving market. The objective of this study is to identify opportunities for creating value in the sugar sector, particularly in the context of household consumption. To achieve this, we will examine consumers' perceptions of sugar, the factors that influence or discourage consumption, and the role of price and brand in purchasing decisions.

This study makes a significant contribution to the field by demonstrating how, even in a mature market with signs of stagnation and heightened competition, it is possible to develop a compelling value proposition for refined sugar. By identifying key attributes that can enhance the value of this commodity, this research provides actionable insights for improving purchase intention, achieving product differentiation, and securing a premium price. These findings also offer a competitive advantage for companies operating in global markets. Furthermore, the managerial implications cover areas of innovation, production, distribution, and marketing, guiding strategic decisions for producers, distributors, and other stakeholders in the sugar industry (van Meurs et al., 2024).

This paper has been organized as follows: First, I explain the theoretical basis of the consumer's behavior. More specifically, the concept of value and its relationship with purchase intention and satisfaction is explained. Second, I reviewed previous research focused on the demand for sugar and consumer behavior. Next, we explain the objectives and the methodology. And, after summarizing the findings, we discuss the results and limitations. Lastly, we present the conclusions and future lines of research.

2. Theoretical foundations and preliminary research

2.1. Perceived value

The demand for products is driven by their utility or intrinsic value. Perceived value is defined as the cost/benefit ratio. More specifically, consumer research has progressed in recognizing the dimensions or attributes of those benefits and costs. Different previous studies (Sánchez-Fernández and Iniesta-Bonillo, 2007; Watanabe, et al., 2020) have focused on analyzing those dimensions for food products. Likewise, the work of Zeithaml (1988) was pioneering in providing different value dimensions and components. In the case of food products, these dimensions focus on the sensorial, instrumental or functional and symbolic dimensions.

2.1.1. Sensorial attributes and value

This unites the sensorial properties of the product, such as flavor, color, aroma, texture or physical appearance. It is the organoleptic dimension of foodstuffs, directly associated and linked to the hedonics dimension. It largely determines product acceptance (Köster, 2009; Lawless and Heymann, 2010; Prescott, 2015). In this case, literature has grouped the physical properties, easily perceived by the consumer at the time of purchase -such as the color, appearance, aroma together with the sensorial properties experienced at the time of consumption (e.g., taste), among which there is huge correlation. The hedonics aspect is one of the main reasons for consumption and exercises have an appreciable influence on the consumption experience. Therefore, the taste has been presented as the attribute that most and best explains satisfaction in the consumption experience (Bello Acebrón and Calvo Dopico, 2000; Ko and Lee, 2021; Tuorila and Monteleone, 2009).

2.1.2. Instrumental attributes and value

In the case of instrumental benefits, these attributes should include the ease of preservation, handling, preparation and consumption**.** One clear example has been the growth in consumption of ready meals. In many cases, the consumer expects to save time that can be targeted at other activities such as leisure or relaxation (Candel, 2001). This deals with benefits associated to a higher level of convenience, which represents a reduction of physical costs e.g., easier handling of a container-, of the psychological costs e.g., a container that retains the properties better provides a sensation of greater hygiene.

2.1.3. Health attributes and value

As mentioned previously, the convenience dimension initially included the health attributes. Subsequently, that dimension was split into two: the convenience or

instrumental benefits and the health benefits. From the consumer's point of view, the health benefits of food products encompass different aspects: the healthy, wellbeing, dietary and nutritional effect. Wu et al. (2021) recognised another kind of benefit that they defined as credence quality attributes related to health benefits. Among these attributes are the nutritional value, the absence/presence of additives and the production method.

2.1.4. Intangible attributes and value

This symbolic dimension would include references to intangible attributes such as image or symbolism associated to the brand or to the origin of the product (Tsai, 2005). This dimension would also include references to intangible attributes such as image, symbolism or positive associations tied to the source or other intrinsic feature. Although the source is an intrinsic attribute of the product, it has a great influence on the image that consumers form in their mind (Keller and Swaminathan, 2020). Furthermore, it is possible to identify other intangible attributes such as the values of the brand trust, guarantees, or the brand image.

2.2. Perceived costs and value

As explained already, Zeithaml (1988) discovered cost elements that included not only economic costs, which refers to the economic sacrifice that the consumer must assume to purchase the product, but also other non-economic costs. These costs include the physical and time costs (e.g., the physical effort and time in locating the store), psychological costs (e.g., cost of preparing a food). Logically, the higher the benefits (e.g., a grain of brown sugar that taste better) and the lower the costs, the greater will be the consumers' perceived value. Below we examine the relationship between perceived value and satisfaction.

2.3. Perceived value and its relationship with satisfaction and purchase intention or consumption

According to Guiné et al. (2020), the global preference for a product is the result of weighing up these dimensions. This process will be influenced by needs, motives, socio-cultural or situational elements, as well as by the consumer's beliefs regarding those dimensions. To the extent that the expected or perceived benefits of a product adapt to what the consumers demand, the consumers will display their satisfaction or dissatisfaction. If the product offered adapts to the consumers' preferences, the consumers will reveal their well-being and satisfaction, forming a favourable attitude towards the product, and will therefore form a favourable intention of purchasing or of consuming the product in question (see **Figure 1**). Thus, if the consumers perceive that a food product enables them to save time and efforts saving of physical or timing costs or facilitates food preparation—instrumental benefits, the domestic agent will reveal their satisfaction and, consequently, will demonstrate a favourable attitude towards the product or the brand. In other words, if sensorial, functional or convenience, health or intangible dimensions adapt to what consumers demand, they will display a favourable intention to purchase and to consume a specific product.

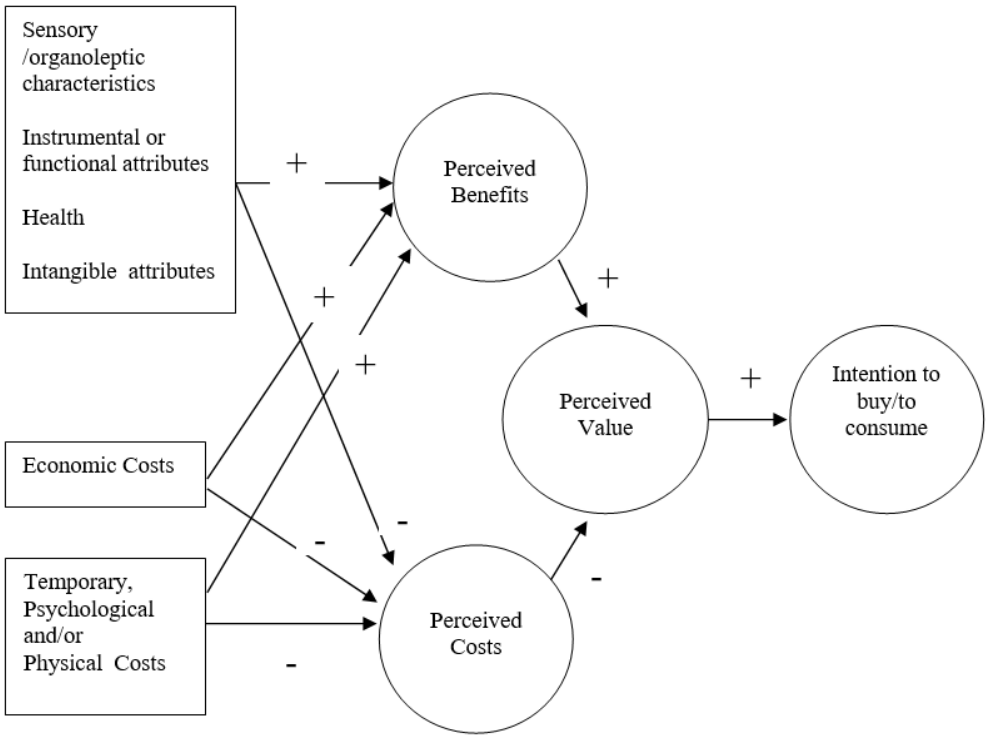

Figure 1. Value dimensions and their relationship with purchase intention or consumption.
Source: Own elaboration.

3. Previous research: The demand for sugar and consumer behavior

For different categories of food products, such as meat, fish, fruits, and vegetables, research has identified organoleptic properties, including taste, appearance, aroma, and texture—as the primary attributes influencing consumer acceptance or rejection (Honkanen et al., 2004; Myrland et al., 2000). Among these, taste stands out as the most critical factor (Neufeld et al., 2022). The addition of sugar as an ingredient plays a pivotal role in enhancing the hedonistic dimension of food products, significantly increasing the likelihood of overconsumption.

Huang et al. (2023) emphasize the indirect effects of health awareness on consumer behaviour, highlighting the emotional (e.g., anxiety) and cognitive (e.g., self-congruence) factors that influence Maximum Permissible Exposure (MPE) outcomes for reduced-sugar labelling on products. Meanwhile, the consumption of sugar and added sugars has risen considerably in recent decades (Russell et al., 2023). This increased intake, in conjunction with factors such as sedentary lifestyles and unhealthy diets, has resulted in a multitude of public health concerns, including dental cavities, obesity, hypertension, and diabetes. However, contemporary studies (Walton, and Nugent, 2023) are re-evaluating sugar's role in health, acknowledging its indispensable function in specific contexts while also fostering a predominantly negative attitude towards its consumption.

The implementation of strategies to reduce sugar consumption has led to the development of numerous health promotion initiatives. For example, Piekara (2022) demonstrates the efficacy of sugar taxes in reducing the consumption of sugary beverages, thereby illustrating the potential of fiscal measures to influence consumer

behaviour. However, these initiatives frequently fail to consider the complex factors that influence sugar consumption. A significant proportion of consumers are unaware of the sugars they consume, either due to a lack of knowledge or psychological factors such as time pressure or anxiety. Furthermore, while some consumers are aware of the potential risks associated with sugar consumption, they may fail to recognise the benefits of reducing it. To gain insight into these behaviours, it is necessary to examine several variables, including health awareness, personal involvement and situational factors (such as stress or anxiety) that drive higher sugar consumption. This complexity suggests that the health implications of sugar depend not only on its perceived healthiness but also on the importance individuals place on health and the influence of situational factors.

The challenges associated with sugar consumption have prompted the search for substitutes such as fructose and sucrose. Recent research has identified stevia (Stevia rebaudiana) as a potentially valuable bio-sweetener. This natural, calorie-free herb is 200 to 300 times sweeter than sugar and is anticipated to assume a pivotal role in the expanding natural food market (Putnik et al., 2020). The potential benefits of stevia are particularly relevant for specific populations, including those with diabetes, individuals seeking to reduce calorie intake, and children. Recent research highlights Stevia as a promising bio-sweetener. This natural, calorie-free herb is 200 to 300 times sweeter than sugar and is expected to play a significant role in the growing natural food market (Putnik et al., 2020). Stevia's potential benefits are particularly relevant for specific populations, including diabetic patients, individuals aiming to reduce calorie intake, and children.

In terms of instrumental or functional attributes, previous research has identified two critical areas: nutritional labelling and functional packaging. The importance of nutritional labelling has increased considering its implications for consumer health. It is imperative that accurate and accessible information on sugar and calorie content be made available to the public (Yusta-Boyo et al., 2020). However, many consumers find this information challenging to interpret, underscoring the need for clearer and more comprehensible labelling systems (Ikonen et al., 2019). Furthermore, instrumental attributes, such as ease of use, handling, and preservation, present potential value-creation opportunities in sweetener products, although these areas remain underexplored.

In conclusion, the symbolic dimension of food products is concerned with intangible attributes, including exclusivity, distinction, and brand image. In the context of sugar, branding is of paramount importance due to the product's homogeneity and low intrinsic value. Branding thus becomes a crucial factor in consumers' purchasing decisions, fostering satisfaction when sensory, instrumental, and functional expectations are met. As a result of this cyclical process, the consumer's intention to repurchase is reinforced, with the perceived benefits of the product becoming linked to the overarching value of the brand (Keller and Swaminathan, 2020).

4. Data collection and methodology

The theoretical foundations and insights gained from previous research provide a comprehensive understanding of the mechanisms of value creation in the sugar

market. Building on this foundation, the methodology section describes the analytical framework and data collection techniques to ensure that the research design effectively answers the key questions derived from the literature, facilitating a robust exploration of value creation in this market.

4.1. Objectives and design of the research

Basing ourselves on the foregoing concepts and foundations and on previous research, we have conducted the research in two major stages (**Table 1**). In the initial stage, we identified the value dimensions, and the attributes associated with each of these. To achieve this objective, we carried on two in-depth interviews with sector specialists to obtain the different benefits or costs associated with each value dimension. This output was of huge importance to develop the questionnaire. In the second stage, in February 2024, we conducted quantitative research in the city of Madrid using simple random samplings. The technique used was the survey and the sample consisted of 402 people responsible for household purchases, which allows a confidence level of 95% and a sampling error of 5%. **Table 1** shows the items and scales used in quantitative and qualitative research.

Table 1. Variables, items and scales used in quantitative and qualitative research.

Research Type	Study Aim	Variables Employed	Statistics Technique
Qualitative Research	To identify the benefits and costs for each of the dimensions of value in sugar consumption	Benefits or costs associated to each value dimension	In depth interviews
Quantitative Research	To analyze the purchase habits of different sugar varieties	Purchase habits measured by interval scale	Percentage
	Research into the positioning of the different sugar varieties (white, brown and sweeteners)	Variables identified by sector specialists	Analysis of Correspondence
	To analyze the hierarchy of criteria employed to make the purchase	Open question and subsequent coding	Percentage
	To analyze brand awareness for the different categories of sweetener and the brand equity ranking of the different brands that compete in the Spanish market	Brands recognized by the consumer spontaneously	Percentage
	To analyze brand equity of brands used to buy	Variables of brand equity (awareness, perceived quality, brand association, Loyalty)	Count-up of frequencies (spontaneous awareness) Analysis of the Variances (Brand equity ranking)

Source: Own elaboration.

4.2. Organization of the questionnaire

The questionnaire has been organized pursuant to the following structure. The questionnaire begins with a question to find out whether the interviewee is responsible for household purchases. If the answer is no, the questionnaire would be considered as finalized. The first section seeks to analyze the habits, and the perceived benefits and costs associated with sugar consumption. In this section, the interviewee is asked to list the purchasing habits for the different categories of sugar. They are also asked to specify the associated benefits and costs for the different categories of sugar. We then analyze the hierarchy of attributes in the assessment stage. In this case, the user

must make an assessment based on an ordinal scale from the first to the fourth regarding the different variables they use at the time of purchasing the product (e.g., packaging, price, brand, promotion, etc.). For the different attributes listed, the interviewee was asked to distribute 10 points, which will enable us to obtain a more accurate approximation of the variables ranking used in the assessment stage. This question required the expertise and skill of the interviewer, given that there were no categories, and the question was an open one. Next came the questions to assess the brand influence, including the spontaneous awareness of different brands or the brands they usually buy. In addition, due to brand importance, we gave an in-depth assessment of the brand equity sources (awareness, perceived quality, brand associations and loyalty). Last of all there are the socio-demographic variables that include gender, age, occupation, people in the household and social class.

5. Results

5.1. Sugar purchasing habits

As shown in **Table 2**, the sugar buyer is mainly female (58.5%), between 36 and 50 years old (5.5%), works (81%), belongs to a 2-member household (30.85%), is of middle social class (54.47%) and buys on average 3.53 kg per year (**Table 3**). For this product, as shown in the table, there is no single purchase pattern. In fact, there is a wide variety. Four distinct behavioral patterns can be discerned. Firstly, there are consumers who regularly purchase the product in question. This figure represents the percentage of households that regularly purchase the product in question, with a frequency once a month (19.9%). Additionally, households that purchase less regularly (45.02% once every three months) may be considered. Thirdly, a more occasional purchase behavior may be observed, which would group categories with less frequent consumption (35.07%). Finally, there is behavior that reveals a group of consumers with an unfavorable attitude towards the product (35%). This represents a notable group of consumers that reject the consumption of sugar (**Table 4**).

Table 2. Socio-demographic structure of the sample.

Sugar Consumer and Buyer Profile			
Category	**Subcategory**	**Number of surveys**	**%**
Gender	Men	167	41.54%
	Women	235	58.46%
	Total	402	100.00%
Age	18-35	107	26.62%
	36-50	219	54.48%
	51-70	76	18.91%
	Total	402	100.00%
Occupation	Works	326	81.09%
	Does not work	76	18.91%
	Total	402	100.00%
	1 person	119	29.60%

People in the household	2 persons	124	30.85%
	3 o 4 persons	113	28.11%
	5 o more	46	11.44%
	Total	402	100.00%
Social class	Upper and upper-middle	62	15.42%
	Middle	227	56.47%
	Middle and lower	113	28.11%
	Total	402	100.00%

Source: Own elaboration.

Table 3. Quantity consumed in the household per year.

Quantity consumed in the household per year			
Category	**Number of surveys**	**%**	**Average consumption**
Up to 0.99 kg	22	5.47%	0.5
From 1 kg–1.99 kg	88	21.89%	1.8
From 2 kg–2.99 kg	137	34.08%	2.8
More than 3 kg	155	38.56%	5.6
Total	402	100.00%	3.53

Source: Own elaboration.

Table 4. Frequency of purchase.

Frequency of purchase		
Category	**Number of surveys**	**%**
Once a fortnight or more often	0	0.00%
Once a month	80	19.90%
Once every 3 months	181	45.02%
Less frequently o never	141	35.07%
Total	402	100.00%

Source: Own elaboration.

Concerning the remaining categories of sugar, both white sugar, brown sugar and sweeteners revealed the same pattern of consumption, that is mainly occasional consumption.

As we have identified an appreciable percentage of consumers that do not demand sugar, or who reveal a more unfavorable attitude towards sugar consumption, we wanted to analyze the main reasons curbing consumption. This involves the perceived costs that, as explained in the theoretical framework, can act as variables that reduce the perceived value and even inhibit purchase. Because of their importance, we have analyzed which of these could curb purchasing.

5.2. Positioning of the different sugar varieties

As shown in **Figure 2**, two major dimensions capture the different attributes associated with sugar consumption. Firstly, we identify those attributes related to traditional uses versus novel uses of consumption that explains a major percentage of the variance (60.75%) horizontal axis. Secondly, we identify those attributes

associated with the versatility versus specific uses of sugar consumption. This dimension provides an explanation for the variance of 39.25% vertical axis. Overall, this explains 100 % (**Table 5**).

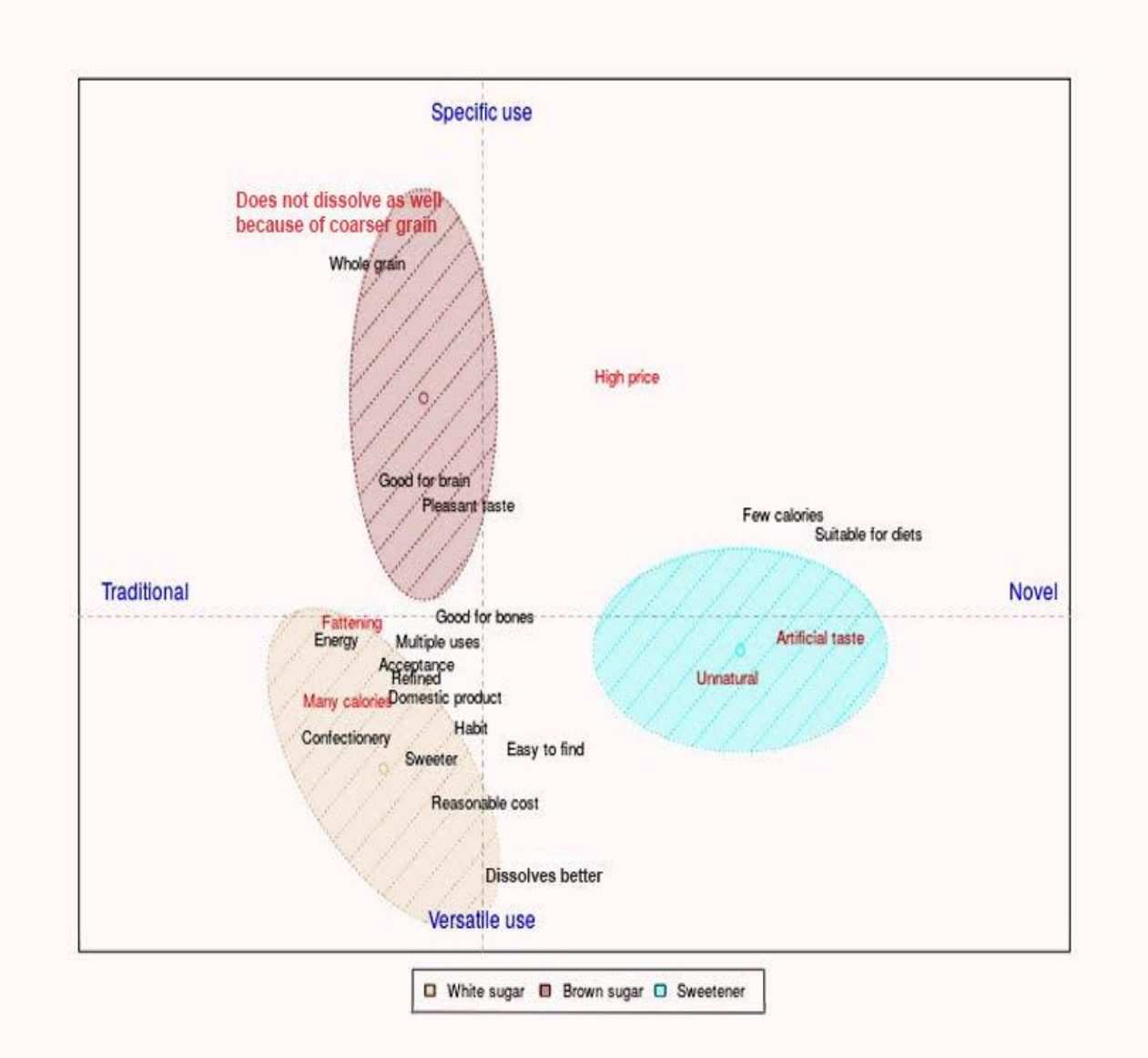

Figure 2. Factorial analysis of correspondence: Positioning map for white and brown sugar and sweetener.
Source: Own elaboration.

Table 5. Main attributes associated with each dimension.

Characteristics	**Dimension 1: % of variance: 60.75**		**Dimension 2: % of variance: 39.25**	
	Coordinates	**Contribution**	**Coordinates**	**Contribution**
Sweeter	−0.14	0.85	−0.28	5.29
Pleasant taste	−0.04	0.06	0.22	2.62
Dissolves better	0.14	0.48	−0.50	9.95
Coarse grain	−0.35	2.50	0.76	18.25
Wholegrain	−0.31	1.83	0.73	15.15
Does not dissolve as well	−0.26	1.18	0.80	17.46

Artificial taste	0.92	15.05	−0.04	0.05
Unnatural	0.67	9.90	−0.12	0.53
Multiple uses	−0.12	0.58	−0.03	0.07
Acceptance	−0.18	1.01	−0.12	0.67
Habit	−0.03	0.02	−0.22	1.68
Easy to find	0.17	0.94	−0.27	3.66
Good for bones	0.00	0.00	−0.02	0.01
Good for brain	−0.16	0.58	0.27	2.58
Many calories	−0.37	4.95	−0.14	1.16
Fattening	−0.36	3.76	−0.02	0.01
Energy	−0.40	6.12	−0.05	0.15
Few calories	0.82	16.74	0.18	1.26
Suitable for diets	1.05	26.06	0.16	0.99
Domestic product	−0.10	0.33	−0.13	0.84
Refined	−0.18	0.46	−0.13	0.34
High price	0.39	2.97	0.47	6.52
Confectionery	−0.37	3.45	−0.25	2.31
Reasonable cost	0.01	0.00	−0.37	5.78
Other	0.20	0.18	0.62	2.67

Source: Own elaboration.

Based on the previous result where we have identified the dimensions of sugar consumption value and considering the different categories of product, we can extract three great results whose managerial implications are focused on explaining the positioning of the product, that is, the associated benefits in the mind of consumer for each of the sugar varieties. First, the positioning of the white sugar is explained by the intersection of the traditional and versatile dimensions, that is, the attributes of energy, good for bones, acceptance in the household and multiple uses. As we can see, consumption of white sugar is far more common in consumers' diets and incorporates many benefits for the consumer. Second, the positioning of the brown sugar is explained by the intersection of the traditional use dimensions but for specific situations consumers would emphasize mainly the attributes of whole grain and pleasant taste. Finally, the positioning of the sweeteners (i.e., saccharin) are mainly associated with the novelty dimensions of the product which are becoming more habitual for a small group of consumers and with very few attributed benefits (suitable for diets and low calorific power), but an artificial flavor.

Besides the identification of benefits, it is important to emphasize the costs or barriers to consumption of the different varieties of sugar. For white sugar, the main perceived costs are derived from the belief of its high calorific value and its negative influence on being overweight. This finding highlights the primary health risk associated with sugar consumption, as evidenced by studies such as those conducted by Keller and Guyt (2023). However, it is important to note that this risk may be overestimated due to the influence of other factors, including a sedentary lifestyle and unhealthy diets. These factors should be considered alongside sugar consumption when examining the prevalence of being overweight and obesity. In the case of brown

sugar, consumers think it does not dissolve as well as the other varieties of sugar and they are not familiar with this product. Regarding icing sugar, it is not a very well-known category, hence it is not reflected in the graph. The observations also reveal that the consumer is either unaware of this product or does not use it. However, there is an opportunity to associate icing sugar with the benefit of being able to develop bakery products.

5.3. Brand awareness and brand equity in the sugar market

5.3.1. Brand awareness

One of the best criteria to assess brand equity is spontaneous awareness (Aaker, 2003). As shown in **Table 6**, brand awareness for each one of the sugar categories. Azucarera is the brand leader in white sugar and brown sugar market in Spain, with a clear advantage over its rivals. In the case of white sugar, it registers the highest figure with 80% versus the private labels (60%) and Acor (3%). Regarding brown sugar, Azucarera records 61% brand positioning itself as the leader in these types of sweeteners as well. These figures reveal a very interesting fact, namely the extremely high correlation that exists between brand awareness and market share **(**Aaker, 2003**).** In effect, the brand that achieves the highest spontaneous awareness in the white sugar and brown sugar categories is Azucarera. This figure also reveals that this brand, Azucarera, is developing very accurate marketing programmers targeted at improving brand awareness, such advertising, promotion of sales and merchandising. Similarly, the Natreen has reached a position of leadership in the sweeteners market, which, as with the other sugar categories, reveals the importance of creating strong brands. As explained in the case of Azucarera, the Natreen brand has managed to position itself very well in this market niche and to capture a large part of the potential market.

Table 6. Spontaneous awareness of the sweetener categories (percentages).

White sugar		**Brown sugar**		**Sweetener**	
Brand	**Percentage (%)**	**Brand**	**Percentage (%)**	**Brand**	**Percentage (%)**
Azucarera	80%	Azucarera	61%	Natreen	44%
Private Label	60%	Private Label	50%	Private Label	75%
Acor	3%	Acor	3%	Stevia	1%
Does not know	9%	Does not know	33%	Does not know	43%

Source: Own elaboration.

5.3.2. Assessment of brand equity of the different brands that exist in the Spanish market

Table 7 shows the results of the mean differences of the brand value attributes (awareness, perceived quality, loyalty, brand associations), overall brand equity, willingness to buy (WTB) and willingness to pay (WTP) in sugar brands from the sector (Azucarera, Acor, and private labels). As can be seen for the set of brands and for each of the attributes analyzed there are significant differences. This indicates that at least one of the brands differs significantly from the others in these variables. The WTP shows no significant differences between the brands as the *F*-value (3.98) is below the critical value (4.130). Furthermore, brand association ($F = 21.31$) and WTP

(F = 24.52) stand out with the highest values, suggesting that these are the two areas in which the brands show the strongest differences. However, the ANOVA (**Table 7**) test offers an overall result which is not sufficient to identify the differences between brands and provides a detailed understanding of the magnitude of the differences. This is essential to interpret the results in more detail and to be able to design specific strategies in the future. Therefore, we performed comparisons between brands using the Tuckey test. This analysis allows us to specify between which pairs of brands these differences exist and the magnitude of these differences. The Turkey test addresses these questions by performing paired comparisons controlling for type I error. As can be seen in **Table 8** there is a brand (Azucarera) with significantly higher values than the other alternatives for each of the attributes analyzed. The Azucarera brand stands out significantly compared to Acor and Private Labels in all dimensions apart from the WTP with the Acor brand, where there are no significant differences. Comparing the Azucarera brand with the rest of the brands, there is a significant difference (p = 0) and Azucarera has an average Brand Equity score 1.59 points higher than Acor and Private Labels. This higher Brand Equity than its competitors are due to a significant superiority in brand awareness, perceived quality and brand loyalty. The Azucarera brand achieves a position of significant strength ($p < 0.05$) in purchase intention, with an average of 0.787 points higher than Private Label. On the other hand, the Acor and Private Labels brands do not show significant differences ($p > 0.05$) in any dimension. These results reveal that despite being a highly homogenous good, as is the case of sugar, the brand brings a high differentiation compared to the other alternatives. This result reinforces the conclusion presented in the previous section where the awareness of the Azucarera brand has been highlighted compared to the rest. It is not only the most notorious brand, but also the brand with the highest intention to buy (WTB) and willingness to pay (WTB) see **Table 8**. These findings corroborate the theoretical foundations explained in section 2, which allow us to identify that the brand is a source of value in the sugar market, that is, there is an opportunity to add value through brand.

Table 7. Difference of means for brand equity dimensions, willingness to buy (WTB) and willingness to pay (WTP). ANOVA test.

Results of the Analysis of Variance (Brand equity ranking)							
	Awareness	**Perceived quality**	**Loyalty**	**Brand associations**	**Overall brand equity**	**WTP**	**WTB**
F value	17.97	18.76	20.48	21.31	9.18	3.98	24.52
P value	0.00	0.00	0.00	0.00	0.00	0.00	0.00
D.f.	4.130	4.130	4.130	4.130	4.130	4.130	4.130

Source: Own elaboration.

Table 8. Difference of means for brand equity dimensions, willingness to buy (WTB) and willingness to pay (WTP) for different brands of sugar (Tukey test).

***P*-values for Tukey's HSD test**														
	Awareness		**Perceived quality**		**Loyalty**		**Brand associations**			**Brand equity**	**WTP**		**WTB**	
	diff	***p* adj**	**diff**	***p* adj**	**diff**	***p* adj**	**diff**	***p* adj**	**diff**	***p* adj**	**diff**	***p* adj**	**diff**	***p* adj**
AZUCARERA-ACOR	2.03	0.00	1.75	0.00	1.89	0.00	1.64	0.00	1.59	0.00	0.66	0.07	1.87	0.00

ACOR-PRIVATE LABEL	0.26	0.96	0.21	0.96	0.15	0.99	0.13	0.99	0.00	1.00	−0.12	1.00	0.08	1.00
AZUCARERA-PRIVATE LABEL	1.77	0.00	1.53	0.00	1.74	0.00	1.51	0.00	1.59	0.00	0.78	0.02	1.95	0.00

Diff: difference in the observed means. *P* adj: *p*-value after adjustment for multiple comparisons.
Source: Own elaboration.

To assess brand equity, we have analyzed the dimensions of brand awareness, perceived quality, loyalty, and brand associations. I have identified major differences between the brands that exist in the Spanish market, with the most prominent of these being Azucarera. In all the items under analysis, Azucarera obtains a score that is significantly higher than the remaining options or alternatives that compete with this brand, including private label brands. Azucarera is the most well-known brand, with the best brand image and perceived quality significantly higher than the rival alternatives. This finding reveals another very interesting result. The development of strong brands, with an excellent image, well-known and of quality, adds value and encourages the end consumer to choose (Aaker, 2004).

6. Managerial implications

This study presents a strategic framework for business managers who are attempting to navigate the challenges of a maturing sugar market, which is characterized by increasing competition, shifting consumer perceptions and regulatory changes. The following section presents the principal managerial implications, which are organized in a logical sequence to highlight actionable insights for enhancing brand value and addressing consumer needs.

6.1. Adapting supply to consumer needs

The positioning map has identified key characteristics associated with different sugar categories, indicating the potential for commercial prospects if managed effectively. White sugar is distinguished by its versatility, rendering it appropriate for a multitude of domestic applications and consumption contexts. This versatility indicates that consumption situations can be employed as an effective criterion for market segmentation (Gehrt, 2000). It is, however, of the utmost importance that managers focus their attention on innovations that align with consumer preferences for regulated sugar consumption, convenience, and health-conscious choices. One avenue for further research that shows promise is the development of new formats of white sugar that are tailored to specific consumption situations. One potential avenue for exploration is the introduction of portion-controlled single-dose packaging. Such innovations would not only assist consumers in managing their calorie intake but would also enhance product preservation, reflecting the ongoing development of instrumental product attributes.

6.2. Leveraging differentiation through branding

In a market where products are increasingly similar, it is crucial to establish high-visibility brands with positive associations. This is particularly important in the

context of commoditized products such as sugar. The differentiation of products can be achieved by the promotion of specific attributes, such as versatility, sustainability, and health benefits, which provide a competitive advantage.

The less refined qualities and integral attributes of brown sugar position it as a premium product. The strategic marketing of these characteristics has the potential to enhance the appeal of the product to both health-conscious consumers and industrial buyers.

6.3. Targeting new consumer segments

A further significant challenge is the need to adapt to the preferences of emerging consumer segments (Zhang and Chang, 2021), in line with the pivotal role of public policies and regulatory frameworks in influencing consumer behavior and market dynamics. There is a growing population segment that is demanding natural and lower-calorie alternatives. While artificial sweeteners such as saccharin have been developed to address this demand, they are often perceived as unnatural and lacking in flavor. It would be prudent for managers to invest in efforts to address the negative perceptions associated with artificial sweeteners and to develop narratives that highlight the natural and healthier aspects of these products.

6.4. Promoting brown sugar in confectionery

The potential of brown sugar in the confectionery market, particularly in desserts and sweets, offers promising avenues for growth. It would be beneficial for managers to consider product development tailored to the industrial confectionery and food service sectors, with a particular focus on the natural and distinctive properties of the product.

6.5. Enhancing consumer loyalty through value communication

It is increasingly evident that price remains a decisive factor in consumers' purchasing decisions, particularly as consumers become more rational in their choices. Promotions that emphasize added value, such as culinary guides or recipe booklets, have the potential to foster deeper consumer loyalty by underscoring the practical benefits they offer.

The conversion of brand awareness into purchase intention represents a key strategic objective. Despite the Azucarera brand holding the highest market share in terms of value, at approximately 35% (Mercasa, 2023), this is still considerably below its brand awareness in white (80%) and brown (60%) sugar. The clear communication of product benefits, coupled with targeted promotions, has the potential to strengthen brand equity and encourage repeat purchases.

In conclusion, businesses can overcome the challenges posed by evolving market dynamics by aligning product innovation with consumer behavior trends and leveraging strong branding strategies. The findings of this research offer actionable insights that can be employed in the development of bespoke solutions, the capture of new market segments and the enhancement of consumer loyalty. This ensures a sustainable competitive advantage in the sugar market.

7. Conclusions

This study makes a significant contribution to the fields of consumer behavior and marketing by identifying novel strategies to create and capture value in the sugar market, a sector currently under scrutiny due to health concerns associated with sugar consumption. The findings indicate that segmentation, repositioning and product innovation may prove an effective means of revitalizing this market while simultaneously addressing evolving consumer expectations. Furthermore, the research highlights the critical necessity of integrating public policy considerations into brand strategy development. Policies pertaining to health labelling, sugar taxation and sustainable packaging are transforming the retail sugar market, influencing consumer perceptions and purchasing behavior. Brands that proactively align their value propositions with these regulatory trends are well-positioned to gain enhanced consumer trust and secure a competitive advantage in the marketplace.

8. Contributions to consumer behavior and marketing

8.1. Segmentation and repositioning

The study underscores the significance of discerning and capitalizing on consumer-centric attributes to reposition sugar categories in an efficacious manner. White sugar is esteemed for its versatility and convenience, rendering it an optimal choice for household consumption and a pivotal area of product innovation. Brown sugar, perceived as less refined and integral, can be positioned as a healthier alternative. Its attributes align with consumer demand for less-processed, natural products, offering opportunities to target health-conscious segments.

8.2. Product innovation

The development of portion-controlled, single-dose packaging not only aligns with consumer preferences for regulated sugar intake but also extends the product's shelf life, enhancing its practicality and perceived value.

Innovations targeting the industrial confectionery and food service markets, such as the development of bespoke formats of brown sugar for desserts and sweets, present a distinctive opportunity for value creation.

8.3. Role of brand equity

The study highlights the pivotal role of branding, even for products with low consumer involvement, such as sugar. A strong brand equity has a positive influence on consumer decisions, increasing both the willingness to pay (WTP) and the willingness to buy (WTB).

It is of paramount importance to communicate the benefits of products, particularly brown sugar's intrinsic characteristics, to achieve differentiation and ensure market success.

8.4. Marketing communication strategies

The implementation of effective promotional activities, such as the distribution of recipe booklets and the undertaking of value-oriented campaigns, has the potential to enhance consumer loyalty.

The strategic conversion of brand awareness into purchase intent represents a potential source of increased market share.

8.5. Further research

The findings of the study are of interest as they elucidate potential routes for enhancing our comprehension of the refined sugar market. The next steps should ideally entail an analysis of consumer response in a real shopping environment, as well as an investigation into the strategic interests of major retailers in developing the category and the role of brands in this. The qualitative component could be expanded to include a broader range of industry experts or consumer focus groups to gain a more robust contextual understanding. Furthermore, it would be beneficial to extend this study to different geographical areas of Spain to ascertain whether there are variations in consumer behavior across these territories. Finally, an analysis of the global relevance in similar markets would also be of interest.

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