

Research Article

# Brand equity applied to the FMCG industry before and during the covid-19 pandemic: A case study of private label products in Ireland

## Valor de marca aplicado a la industria de bienes de consumo, antes y durante la pandemia de la covid-19: Caso de estudio de los productos de marca blanca en Irlanda

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## Abstract

**Introduction:** This study aims to examine the significance of brand equity in private label products in Ireland, focusing on the period before and during the covid-19 pandemic.

**Methodology:** The sample consisted of 412 citizens of Cork (Ireland) who normally consume this kind of products. Five-point Likert scales were used to measure the main elements of brand equity, based on the previous studies found in the literature. IBM-SPSS29 was used as a working tool. **Results and discussion:** The results show a positive relationship between perceptions of all variables related to brand equity both before and during covid-19, with perceived quality being the most significant variable. There were also significant differences in mean brand equity before and during the covid-19 pandemic. However, gender was not found to be an influential factor on mean brand equity and the other variables influencing it.

**Conclusions:** This research, with its focus on empirical evidence, bridges the gap between theoretical concepts and real-world applications, positioning the findings as an important resource for decision-making in the competitive retail landscape.

**Keywords:** marketing; brand equity; FMCG industry; private label products; covid-19 pandemic; gender; regression techniques and analysis of variance; Ireland.

## Resumen

**Introducción:** El propósito de este estudio es analizar la importancia del valor de marca en los productos de marca privada en Irlanda antes y durante la pandemia de la covid-19.

**Metodología:** La muestra estuvo formada por 412 ciudadanos de Cork (Irlanda) que consumen habitualmente este tipo de productos. Se utilizaron escalas Likert de cinco puntos para medir los principales elementos del valor de marca, basándose en los estudios previos encontrados en la literatura. Se utiliza IBM-SPSS29 como herramienta de trabajo. **Resultados y discusión:**

Los resultados muestran una relación positiva entre las percepciones de todas las variables relacionadas con el valor de marca tanto antes como durante la pandemia de la covid-19, siendo la calidad percibida la variable más significativa. También se encontraron diferencias significativas en el valor de marca medio antes y durante la pandemia de la covid-19. Sin embargo, no se encontró que el género biológico fuera un factor influyente en el valor de marca medio y en el resto de las variables que lo influyen. **Conclusiones:** Esta investigación, centrada en la evidencia empírica, cierra la brecha entre los conceptos teóricos y las aplicaciones en el mundo real, posicionando los hallazgos como un recurso importante para la toma de decisiones en el competitivo panorama minorista.

**Palabras clave:** marketing; valor de marca; industria de bienes de consumo; productos de marca blanca; pandemia de la covid-19; género biológico; técnicas de regresión y análisis de varianza; Irlanda.

## 1. Introduction

Fast-moving consumer goods (FMCG), often called “consumer packaged goods” as noted by Oraman et al. (2011), encompass a variety of sectors including food and beverages, personal care and cosmetics, consumer durables, sporting goods, clothing, homeware, luxury brands, textiles, and furniture. Among these, the food industry stands out as one of the most fiercely competitive sectors within FMCG, characterized by continuous evolution. According to Shaikh (2020), FMCGs are typically low-margin products that are sold in high volumes. Furthermore, Sharma and Sagar (2023) indicate that rising purchasing power, enhanced retail experiences, the widespread adoption of the Internet, and the expansion of e-commerce have all contributed to a notable increase in the number of new product launches within the FMCG industry.

Focusing on the role of private label products globally, Griffith et al. (2016) suggest that financial pressures during and after the 2008 global financial crisis increased consumers' willingness to change their purchasing habits, with many abandoning the purchase of branded products in favour of their private label equivalents. In line with this, according to Gázquez et al. (2017), despite the economic recovery, the adaptation of consumer purchasing behaviour has continued, contributing to the continued demand for private label products. Loureiro (2017) states that the demand for private label products has increased significantly globally. Mannai and Opacic (2023) point out that the industry consists mainly of everyday consumer goods, which are generally low-cost and characterised by a short product life cycle.

In their analysis of the global impact of the covid-19 pandemic on the FMCG industry, Hossain et al. (2020) depict a bleak scenario for the sector and suggest a reevaluation of corporate strategies to sustain business during this crisis. Rajamohan et al. (2021) highlight that the pandemic has influenced the FMCG industry through various factors, including worker migration back to their home countries, logistical challenges, and shifts in consumer purchasing patterns, with a notable rise in demand for hygiene products and a growing interest in cosmetics. Niros et al. (2023) observe a change in consumer behavior aimed at alleviating fear and uncertainty, resulting in an increased demand for FMCG. To adapt to these changes, Kankam (2022) proposes that the FMCG industry embrace digital platforms, enhancing flexibility and facilitating effective transactions between consumers and businesses.

In parallel, Kapferer (2012) observes that organizations across all sectors now aspire to establish themselves as brands. Beyond the traditional realm of consumer goods, where manufacturers and retailers compete directly with their brands, branding has emerged as a critical strategic consideration in every industry. Brand equity is defined as the overall value of a brand as a distinct asset, which can be recognized when sold or reflected on a balance sheet (Feldwick, 1996). Regarding brand equity in the FMCG industry, Azamat et al. (2023) examine the importance of intangible assets in enhancing the value of FMCG companies. They highlight the positive influence these assets have and recommend that managers safeguard them to boost their companies' valuations.

This research aims to achieve the following objectives within the described framework: (1) to identify the key variables that influence brand equity in the FMCG industry, (2) to analyse which factors are most important to consumers in relation to private label products, particularly in Ireland, and (3) to compare consumer perceptions before and during the covid-19 pandemic across various demographic and social dimensions. By conducting this research, retail managers can develop strategies to effectively position their private label products in the competitive retail market.

## 2. Theoretical Framework

### 2.1. Consumers' perception of brand equity of private label products

This study considers brand awareness, brand image, perceived quality and brand loyalty as key elements of brand equity models found in previous research (Aaker, 1992; Buil et al. 2010; Casanoves et al. 2020; Christodoulides & De Chernatony, 2010; Delgado & Munuera, 2002; Faircloth et al. 2001; Farquhar, 1989; Keller, 1993; Kim & Kim, 2004; Lee & Leh, 2011; Liu et al. 2015; Pappu et al. 2005; Pinar et al. 2011; Washburn & Plank, 2002; Yoo & Donthu, 2001). All of them are discussed in detail below with respect to our field of study, the FMCG industry and private label products.

In the area of brand awareness, Huang and Sarigöllü (2012) highlight the critical role of consumer experiences with the brand, along with distribution and price promotions, in driving brand awareness in the FMCG industry. Mohan and Sequeira (2012) found that consumer-based brand equity for FMCG companies encompasses four key dimensions: brand association, brand loyalty, perceived quality, and brand awareness.

Patil (2017) argued that the linkages between brand awareness, brand preference, and brand equity are clearly understood, particularly because FMCGs are widely consumed across all demographic groups. Their findings, derived from an analysis of sixteen FMCG brands across eight product categories, reveal a remarkable relationship between these variables. Wijaksono and Ali (2019) further demonstrate the significant impact of brand awareness, brand association, perceived quality, and brand loyalty on the intention to repurchase private label products. Finally, Araya (2022) examines the brand equity of Chilean pisco, the country's most important distillate, and concludes that brand awareness is the most influential factor.

In terms of brand image, Tariq et al. (2013) examine the factors that influence consumers' purchase intentions in the Pakistani FMCG industry. Their findings reveal a positive correlation between brand image, product quality, product knowledge, product involvement, product attributes and brand loyalty as key determinants of purchase intention. Matarid et al. (2014) highlight that brand image has a significant impact on the brand equity of FMCG companies in Egypt. Joshi and Nema (2017) discuss the challenges faced by marketers in the highly competitive Indian FMCG market, where customers have a plethora of brand options.

To address these challenges, marketers employ various marketing strategies to establish a strong brand image and position their products in the minds of consumers. Furthermore, Świtała et al. (2018) identify a weak but positive relationship between brand image and brand awareness in relation to the brand equity of logistics service providers. Finally, Gupta and Singh (2024) show that organic word-of-mouth marketing driven by user-generated content (UGC) plays a crucial role in creating a positive brand image, expanding reach, and enhancing credibility through personal endorsements of FMCG brands.

Regarding to perceived quality, Wanninayake et al. (2007) show that both perceived quality and perceived fit have a direct positive effect on consumers' evaluation of brand extensions in the FMCG industry in Sri Lanka. Beneke et al. (2013) examine how perceived product quality, relative price and risk influence perceived product value and ultimately consumer willingness to purchase private label household cleaning products. Their findings emphasise that the development of value perceptions is crucial in the purchase process. They highlight the importance of tangible cues, such as packaging, shelf placement and media exposure, which can signal high quality.

They also suggest that the perceived risks involved in the consumer decision process can be mitigated through high quality retailer service and customer reassurance. DelVecchio (2001) investigates the impact of product category characteristics on consumer perceptions of private label quality. The study suggests that factors such as category complexity, price level, average inter-purchase time and quality variance shape perceptions of private label quality. In addition, consumer segments interpret brand names as heuristics, leading to different perceptions of these brands.

Harcourt (2024) finds a positive and statistically significant relationship between perceived quality and marketing effectiveness of listed FMCG companies in Rivers State. Based on these findings, it is recommended that FMCG managers actively engage in strategies to communicate, promote, and educate consumers about their product quality to enhance perceptions of brand equity. Finally, Macias et al. (2024) analyse how consumer-based brand equity influences purchase decisions for FMCG in Ecuador. Their results indicate that brand awareness and the strength of brand associations are positively correlated with perceived quality. They also conclude that perceived quality influences attitudinal loyalty, which in turn influences overall brand equity.

In their study on brand loyalty, De Wulf et al. (2005) examine whether the brand equity of private label products compared to branded products is influenced by brand loyalty. Their findings reveal two key insights:

- (1) the positioning of private labels can significantly affect their performance and
- (2) there is a widespread belief that private label products can match or even exceed the quality of national brands while being offered at lower prices.

Ngobo (2011) presents a model that examines the relationship between a store's relative private label share (RPLS) relative to the market average and store loyalty as measured by share of wallet (SOW). The study shows that the effect of private label share on store loyalty depends on

- (1) the household's use of private labels,
- (2) the store's private label branding strategy, and
- (3) the way private label share is measured (e.g., private label share versus relative private label share).

Moolla and Bisschoff (2012) focus on the validation of a model for assessing brand loyalty in the FMCG industry. Their findings suggest that a systematic and validated approach can enable companies to better understand the dynamics of brand loyalty, thereby allowing them to formulate more effective strategies to increase customer loyalty. Tariq et al. (2013), as mentioned previously, found a positive correlation between brand loyalty and purchase likelihood in the Pakistani FMCG market. Finally, Panda and Kapoor (2016) argue that companies that prioritise the management of consumer loyalty attributes can benefit significantly from leveraging power brands and segmenting loyal customer groups in the FMCG industry.

All that has been said in the previous lines allows us to propose the first set of hypotheses:

- H1a: Perceptions of brand awareness influence perceptions of brand equity among private label consumers in Ireland before the covid-19 pandemic.
- H1b: Perceptions of brand awareness influence perceptions of brand equity among private label consumers in Ireland during the covid-19 pandemic.
- H2a: Perceptions of brand image influence perceptions of brand equity among private label consumers in Ireland before the covid-19 pandemic.

- H2b: Perceptions of brand image influence perceptions of brand equity among private label consumers in Ireland during the covid-19 pandemic.
- H3a: Perceptions of perceived quality influence perceptions of brand equity among private label consumers in Ireland before the covid-19 pandemic.
- H3b: Perceptions of perceived quality influence perceptions of brand equity among private label consumers in Ireland during the covid-19 pandemic.
- H4a: Perceptions of brand loyalty influence perceptions of brand equity among private label consumers in Ireland before the covid-19 pandemic.
- H4b: Perceptions of brand loyalty influence perceptions of brand equity among private label consumers in Ireland during the covid-19 pandemic.

## ***2.2. Comparison of brand equity perceptions of private label consumers***

### *2.2.1. Differences in brand equity perceptions among private label consumers by time*

Seferidi et al. (2019) examine the impact of covid-19 on private label products, noting that the pandemic, along with Brexit in the UK, has led to increased food production costs and financial instability, affecting food supply and prices. This scenario is likely to drive consumers towards more affordable options, such as private label products. Similarly, Padhi and Mishra (2022) highlight the global impact of the pandemic, specifically highlighting market uncertainty in India, which has led to significant growth in private label products in the FMCG industry.

This trend reflects consumers' growing preference for lower-priced alternatives that still meet their quality expectations. Finally, Tien (2022) examines the transport and logistics sector in Vietnam, a vital component of the country's economy, which has faced significant disruptions and challenges over the past three years related to the movement of goods and market brand value due to the pandemic.

This allows us to propose the first set of moderating hypotheses:

- H5: The mean level of brand equity among private label consumers in Ireland is different before and during the covid-19 pandemic.
  - o H5a: The mean level of brand awareness among private label consumers in Ireland is different before and during the covid-19 pandemic.
  - o H5b: The mean level of brand image among private label consumers in Ireland is different before and during the covid-19 pandemic.
  - o H5c: The mean level of perceived quality among private label consumers in Ireland is different before and during the covid-19 pandemic.
  - o H5d: The mean level of brand loyalty among private label consumers in Ireland is different before and during the covid-19 pandemic.

### 2.2.2. Differences in brand equity perceptions among private label consumers by gender

Lee et al. (2010) examine how factors such as gender, desire for uniqueness and attitudes towards American products affect brand equity dimensions for both US and local apparel brands in India. Their findings indicate that these elements significantly affect perceived quality, brand loyalty and brand associations for US brands, while local brands are only affected in terms of perceived quality. In their study, Tan et al. (2012) examine the moderating role of gender within the consumer-based brand equity framework. They find that while the overall structural model remains largely consistent across genders, the specific relationships between brand awareness and brand image vary.

Males tend to have lower average scores but stronger causal effects. Consequently, brand managers should adjust their brand awareness strategies to better target female consumers while maintaining consistent tactics for perceived quality, brand image and brand loyalty across both genders. Finally, Aydin and Ulengin (2015) analyse how consumer-based brand equity influences purchase intentions, considering socio-economic status and gender as moderating variables. Their research shows that individuals from different socioeconomic backgrounds and genders have different perceptions and responses to brand equity, suggesting that marketing strategies should be tailored to these differences for greater effectiveness.

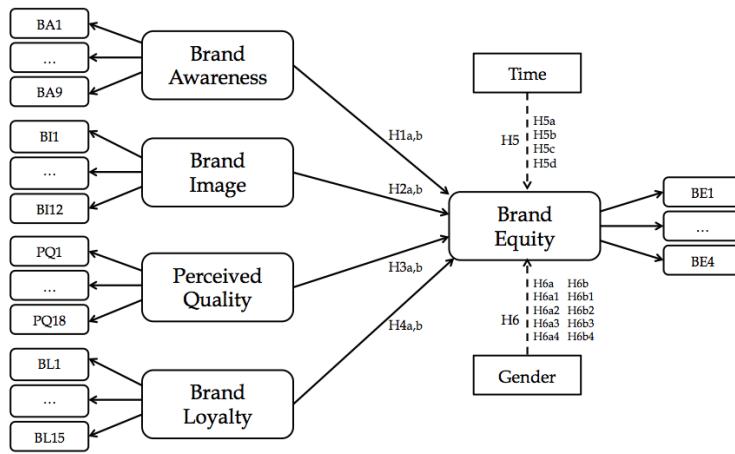
This allows us to propose the second set of moderating hypotheses:

- H6a: Gender influences brand equity perceptions among private label consumers in Ireland before the covid-19 pandemic.
  - o H6a1. Gender influences brand awareness perceptions among private label consumers in Ireland before the covid-19 pandemic.
  - o H6a2. Gender influences brand image perceptions among private label consumers in Ireland before the covid-19 pandemic.
  - o H6a3. Gender influences perceived quality perceptions among private label consumers in Ireland before the covid-19 pandemic.
  - o H6a4. Gender influences brand loyalty perceptions among private label consumers in Ireland before the covid-19 pandemic.
- H6b: Gender influences brand equity perceptions among private label consumers in Ireland during the covid-19 pandemic.
  - o H6b1. Gender influences the brand awareness perceptions among private label consumers in Ireland during the covid-19 pandemic.
  - o H6b2. Gender influences brand image perceptions among private label consumers in Ireland during the covid-19 pandemic.
  - o H6b3. Gender influences perceived quality perceptions among private label consumers in Ireland during the covid-19 pandemic.
  - o H6b4. Gender influences brand loyalty perceptions among private label consumers in Ireland during the covid-19 pandemic.

Considering the above discussion, Figure 1 illustrates our proposed theoretical model, which aims to support the current research.

**Figure 1.**

*Theoretical model proposed for this research*



**Source:** Own elaboration.

### 3. Methodology

The study was carried out in Cork (Ireland). The country was chosen because according to the Irish Grocery Retail Market Overview 2022, grocery retail sales have grown strongly in recent years (around €12.4 billion per year) and the quality of food on offer is at the highest level. In addition, current global dynamics are leading to an increase in the cost of living, which will influence consumer purchasing behaviour and the response of retailers in the coming months. Cork is the second largest city in Ireland and the economic powerhouse of the Southwest region, being home to more than 190 multinational companies and having a diverse economic base with a high concentration of activity in many sectors, of which retail is a key one. All this makes it an ideal location for this research.

A non-probabilistic convenience sample was used, using official data from Cork City Council. This enabled us to identify a total of 210,853 residents, all of whom were resident at the time of the research and potential private label consumers. Information was collected via a questionnaire distributed to residents and after data collection and cleaning, 412 valid surveys were obtained.

In terms of sample profile, there were 56.6% females and 43.4% males, both aged between 15 and 60, who responded to questions about their habits and opinions as consumers before and during covid-19. Responses were received from consumers in 10 different counties, with County Cork representing the largest number (93.4%), and from over 30 different nationalities, with the majority being Irish (60.1%).

In addition, 10% of the sample are under the age of 20, 57.2% are between the ages of 20 and 29, 30.9% are between the ages of 30 and 49 and the remainder are aged 50 or over. 10.4% of these consumers have a salary of less than €20,000 per year, 38.3% earn between €20,000 and €40,000 per year, 13.3% between €40,001 and €60,000 and the rest have a salary of more than €60,000. In addition, 15% of the sample have a secondary education, 48.5% have a university degree and 30.8% have a university degree and a master's degree.

In terms of store and brand preferences, 27.2% consider TESCO to be their favourite store, 2.6% prefer ALDI and 20.1% sympathise with LIDL. Furthermore, 18.9% of consumers chose TESCO's own brand as their favourite brand, 11.4% preferred TESCO's fitness products and 10.9% ALDI's own brand. Finally, more than 57.9% of respondents have been private label consumers for more than 10 years.

A five-point Likert scale, where 1 is 'strongly disagree' and 5 is 'strongly agree', was used to assess the following concepts:

(1) brand awareness,

(2) brand image,

(3) perceived quality,

(4) brand loyalty and

(5) brand equity.

These measures were derived from the validated scales introduced by Aaker (1992), Keller (1993) and Yoo and Donthu (2001) and were selected for their alignment with the attitudinal framework of this research. In line with these previous studies, the relevant items have been tailored to suit our focus on private label products. Finally, IBM-SPSS29 was used as a working tool for data description techniques, regression techniques and analysis of variance (ANOVA). Methods of analysis used:

(1) Hypothesis testing to examine the influence of the different variables mentioned on the brand equity of private label consumers in Ireland;

(2) Analysis of variance to compare the means, before and during the covid-19 pandemic; and

(3) Analysis of variance by citizen's gender.

## 4. Results and discussion

Firstly, hypothesis tests H1-H4 were carried out using simple regression methods, as shown in Table 1, where we include the results from before and during covid-19.

**Table 1.**

*Hypothesis testing before and during the covid-19 pandemic*

H	Stand. beta	R-square	Intercept	Unstand. beta	t-statistic	p-value
H1a	0.394	0.155	1	0.534	9	<0.001
H2a	0.524	0.275	0.51	0.796	12	<0.001
H3a	0.552	0.305	.841	0.766	13	<0.001
H4a	0.538	0.29	1.549	0.666	12.931	<0.001
H	Stand. beta	R-square	Intercept	Unstand. beta	t-statistic	p-value
H1b	0.387	0.15	1.193	0.585	9	<0.001
H2b	0.549	0.302	1.193	0.585	9	<0.001
H3b	0.58	0.337	0	0.84	13	<0.001
H4b	0.543	0.295	2	0.646	13	<0.001

**Source:** Own elaboration.

The results showed a positive relationship between four variables and brand equity, confirming all four hypotheses before and during covid-19 (H1a,b; H2a,b; H3a,b; H4a,b). In particular, brand image emerged as the most significant variable influencing brand equity in the FMCG industry in both contexts, before and during the pandemic.

Secondly, we test the null hypothesis stated as "H5: The mean level of brand equity among private label consumers in Ireland remains unchanged before and during the covid-19 pandemic". As this is a paired data study, we will analyse the differences in means in this context. Specifically, we will examine the variable representing the difference in perceptions of brand equity before and during the pandemic. In addition, we will assess whether there are significant differences in the mean levels of brand awareness, brand image, perceived quality, and brand loyalty, based on the differences in scores for each of these variables. The results are shown in Table 2.

**Table 2.**

*Differences in brand equity by time*

H	Mean	95% confidence interval of difference		df	t-statistic	one side p-value	two side p-value
		lower	upper				
H5	-0.16646	-0.21491	-0.11802	411	-6.755	<0.001	<0.001
H5a	-0.11499	-0.15615	-0.07383	411	-5492	<0.001	<0.001
H5b	-0.10773	-0.1418	-0.07366	411	-6.216	<0.001	<0.001
H5c	-0.12362	-0.15835	-0.0888	411	-6996	<0.001	<0.001
H5d	-0.1195	-0.1523	-0.08669	411	-7.161	<0.001	<0.001

**Source:** Own elaboration.

In all cases, the p-value is less than 0.001, indicating strong statistical evidence of significant differences in mean perceptions of brand equity, brand awareness, brand image, brand quality and brand loyalty before and during covid-19. Therefore, hypotheses H5, H5a, H5b, H5c and H5d are accepted.

Lastly, an analysis of variance was performed to examine perceptions of brand equity using gender as a factor. As all variables were found to be significant, a further analysis of variance was performed on each variable to obtain the arithmetic mean based on the responses differentiated by gender. This was done to facilitate a comparison of brand equity perceptions, as shown in Table 3.

**Table 3.**

*Differences in brand equity by gender*

H	Gender	N	Mean	F-statistic	p-value
H6a	Male	179	2.9977	0.649	0.421
	Female	233	3.0851		
H6b	Male	179	3.1397	1.431	0.232
	Female	233	3.2704		

**Source:** Own elaboration.

Based on the selected five-point Likert scales, the results show that among the 4 items of the questionnaire used to assess brand equity, the average score for females prior to the covid-19 pandemic was 3.085, slightly higher than the average of nearly 3.0 for males.

During the covid-19 period, the average score for women increased to 3.27, while the average score for men was 3.14. An ANOVA analysis showed p-values for the F-ratios of 0.649 and 0.232, both of which are greater than or equal to 0.05. This indicates that there is no statistically significant difference in brand equity perceptions between genders at the 5% significance level, both before and during the covid-19 pandemic. Therefore, hypotheses H6a and H6b are rejected.

Having established the individual impact of variables such as brand awareness, brand image, perceived quality, and brand loyalty on the perception of brand equity, we conducted an analysis of variance for all these factors. Each variable was found to be significant within the proposed model. The aim was to calculate the arithmetic mean based on the responses and biological sex, thus facilitating a comparison as detailed in Table 4.

**Table 4.**

*Differences between brand equity elements by gender*

H	Gender	N	Mean	F-statistic	p-value
H6a1	Male	179	3.4052	1.995	0.2
	Female	233	3.2921		
H6a2	Male	179	3.1678	0.214	0.6
	Female	233	3.2009		
H6a3	Male	179	2.8230	1.584	0.209
	Female	233	2.9213		
H6a4	Male	179	2.2057	0.812	0.368
	Female	233	2.2847		
H	Gender	N	Mean	F-statistic	p-value
H6b1	Male	179	3.4848	0.484	0.487
	Female	233	3.4343		
H6b2	Male	179	3.2890	0.017	0.897
	Female	233	3.2983		
H6b3	Male	179	2.9558	0.978	0.323
	Female	233	3.0378		
H6b4	Male	179	2.3276	0.663	0.416
	Female	233	2.3699		

**Source:** Own elaboration.

In terms of brand awareness, the results show that among the 9 items included in the questionnaire, the average score for females before the covid-19 pandemic was 3.29 points, which was lower than the average score for males of 3.41 points. During the pandemic, the mean score for women increased to 3.43 points, while the mean score for men increased slightly to 3.48 points. An analysis of variance (ANOVA) showed F-ratios of 0.2 and 0.487, either greater than or equal to 0.05. This indicates that there is no statistically significant difference in perceptions of brand awareness between genders at the 5% significance level, either before or during the pandemic. Therefore, hypotheses H6a1 and H6b1 are rejected.

Regarding brand image, the results show that among the 12 items in the questionnaire designed to assess this variable, the average score for females before the covid-19 pandemic was 3.2, slightly higher than the score for males at 3.18. During the pandemic, the mean score for females increased to approximately 3.3, which is very close to the male score of 2.29. The ANOVA analysis yielded F-ratio p-values of 0.6 and 0.897, either greater than or equal to 0.05. This indicates that there was no statistically significant difference in brand image perceptions between the genders, either before or during the pandemic, at the 5% significance level. Therefore, hypotheses H6a2 and H6b2 are rejected.

In terms of perceived quality, analysis of the 18 items in the questionnaire shows that before the covid-19 pandemic, the mean score for women was 2.92, which was higher than the mean score for men of 2.82. During the pandemic, the mean score for females increased to 3.04, while the mean score for males was slightly lower at approximately 2.96. An ANOVA test showed p-values of 0.209 and 0.978 for the two periods, both exceeding the 0.05 threshold. As a result, there is no statistically significant difference between the mean perceived quality scores for the sexes at the 5% significance level, either before or during the covid-19 pandemic. Hypotheses H6a3 and H6b3 are therefore rejected.

Finally, the analysis of brand loyalty reveals some notable trends. Before the covid-19 pandemic, the average score for women across the 15 variables in the questionnaire was 2.28, compared to 2.20 for men. During the pandemic, the female average rose to 2.37, while the male average rose to 2.33. An ANOVA test yielded F-ratios with p-values of 0.368 and 0.418 respectively, both of which are at least 0.05. This indicates that there is no statistically significant difference in brand loyalty between genders at the 5% significance level, both before and during the covid-19 pandemic. Therefore, hypotheses H6a4 and H6b4 are rejected.

## 5. Conclusions

Based on the theoretical insights from the literature review, we highlight that the financial challenges faced during and after the 2008 global financial crisis led consumers to change their purchasing behaviour. Many shifted from branded products to private label alternatives (Griffith et al., 2016). In addition, the recent covid-19 pandemic has led to behavioural changes and demand fluctuations, disrupting supply chains and particularly affecting consumers in the FMCG industry (Hobbs, 2020; Ivanov, 2020). As a result, brand equity has emerged as a critical intangible asset that managers can leverage to increase the value of companies and brands in the FMCG industry (Azamat et al., 2023).

After testing the hypotheses, the proposed model showed that all the variables studied have a positive impact on brand equity, supporting previous studies on (1) brand awareness (Araya, 2022; Huang & Sarigöllü, 2012; Mohan & Sequeira, 2012; Patil, 2017; Wijaksono & Ali, 2019), brand image (Gupta & Singh, 2024; Joshi & Nema, 2017; Matarid et al., 2018; Tariq et al., 2013), perceived quality (Beneke et al., 2013; DelVecchio, 2001; Harcourt, 2024; Macias et al., 2024; Wanninayake et al., 2007) and brand loyalty (De Wulf et al., 2005; Moolla & Bisschoff, 2012; Ngobo, 2011; Panda & Kapoor, 2016; Tariq et al., 2013). Furthermore, differences were observed between the means of all the aforementioned variables with respect to the period before and during the covid-19 pandemic, supporting previous research in the literature (Padhi & Mishra, 2022; Seferidi et al., 2019; Tien, 2022). In terms of gender, there are no significant differences between the variables (either before or during the covid-19 pandemic), which do not support previous research.

Finally, with regard to limitations and future research, it should be emphasised that

- (1) The perceptions of citizens of a specific country (Ireland) have been analysed, the study could be extended to other countries and regions in order to make comparisons;
- (2) The composition of the sample has been designed to include resident citizens only and it is considered interesting to add the perceptions of other stakeholders, such as non-resident citizens who usually travel to the country, for example on a regular basis, managers and employees of the different points of sale, etc.;

- (3) The study was conducted to fully investigate the value of private label products and it is interesting to be able to make a comparison with branded products;
- (4) The focus was particularly on the face-to-face shopping format; it is interesting to know the perceptions of consumers in online stores to know if perceptions vary depending on the shopping channel;
- (5) A fully quantitative technique was used, but it was felt that it could be complemented by a qualitative study; and
- (6) The research was developed at a particular time and it would be interesting to conduct longitudinal studies to determine if time has an effect (e. e. g. after the covid-19 pandemic).

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## Annexes

English wording of items and questions used. Please indicate your level of agreement or disagreement with the following statements (1 = strongly disagree; 5 = strongly agree).

### Brand Awareness (BA)

- BA1. I have heard positive comments about private label products.
- BA2. I have a good opinion of private label products.
- BA3. I have a high level of knowledge about the private label products.
- BA4. Private label products are the products I am most likely to use.
- BA5. I can recognise private label products among other competing products.
- BA6. I am familiar with private label products.
- BA7. I can quickly think of some characteristics of private label products.
- BA8. I can quickly recognise the symbol or logo of private label products.
- BA9. I have no difficulty in visualising private label products.

### Brand Image (BI)

- BI1. I think private label products offer good value for money.
- BI2. I have many reasons to buy private label products instead of others.
- BI3. Private label products are reliable.
- BI4. Private label products offer me special benefits.
- BI5. Private label products have a rich history.
- BI6. Private label products fully meet my needs.
- BI7. The private label service is efficient (in terms of responsiveness, etc.).
- BI8. Compared to other products in the category in which it competes, the price of the private label products is generally lower.
- BI9. It is easy to get maintenance and service when I buy private label products.
- BI10. People I admire and respect would want to buy the private label products.
- BI11. I feel I have grown as a consumer with private label products.
- BI12. I like the people who buy/use the private label products.

### Perceived Quality (PQ)

- PQ1. My perception of the quality of private label products is good.
- PQ2. Private label products fully meet my product needs.
- PQ3. My overall opinion of private label products is good.
- PQ4. Private label suppliers are innovative.
- PQ5. Private label suppliers are interested in my opinion.
- PQ6. I admire and respect private label products.
- PQ7. I would recommend private label to others.
- PQ8. Private label products are important to me.
- PQ9. I am a consumer of private label products: It offers me benefits that other products in the category do not.
- PQ10. It's exciting.
- PQ11. It's fun.
- PQ12. It makes me feel warm.
- PQ13. It makes me feel safe.
- PQ14. It gives me a sense of security.
- PQ15. It gives me a feeling of self-respect.

- PQ16. It gives me a feeling of social recognition.
- PQ17. The quality of private label products is likely to be extremely high.
- PQ18. Private label products are likely to be functional.

### Brand Loyalty (BL)

- BL1. I consider myself a completely loyal consumer of private label products.
- BL2. I prefer to buy/use private label products.
- BL3. Private label products are more than just a product to me.
- BL4. Private label products are special to me.
- BL5. I like private label products.
- BL6. I can identify with the people who buy/use private label products.
- BL7. I feel part of a club with other private label users.
- BL8. I feel a strong bond with other private label users.
- BL9. I enjoy discussing private label products with others.
- BL10. I am always interested in learning more about private label products.
- BL11. I follow news about private label products closely (personally and/or digitally).
- BL12. I am proud that others know I use private label products.
- BL13. I feel loyal to private label products.
- BL14. Private label products would be my first choice.
- BL15. I will not buy other products if private label products are available in the store.

### Brand Equity (BE)

- BE1. It makes sense to buy private label products instead of other products, even if they are the same.
- BE2. Even if other products have the same characteristics as private label products, I will prefer to buy private label products.
- BE3. If there are other products that are as good as private label products, I prefer to buy private label products.
- BE4. If there are other products that are not different from private label products, it seems smarter to buy private label products.

## **AUTHORS' CONTRIBUTIONS, FUNDING AND ACKNOWLEDGEMENTS**

### **Authors' contributions:**

**Conceptualization:** Casanoves-Boix, Javier and Cruz-García, Ana; **Software:** García-Lafuente, Sonia; **Validation:** García-Lafuente, Sonia; **Formal analysis:** García-Lafuente, Sonia; **Data curation:** Casanoves-Boix, Javier and García-Lafuente, Sonia; **Writing-Preparation of the original draft:** Casanoves-Boix, Javier, Cruz-García, Ana and García-Lafuente, Sonia; **Writing-Review and Editing:** Casanoves-Boix, Javier, Cruz-García, Ana and García-Lafuente, Sonia; **Visualization:** Casanoves-Boix, Javier, Cruz-García, Ana and García-Lafuente, Sonia; **Supervision:** Casanoves-Boix, Javier; **Project administration:** Casanoves-Boix, Javier; **All authors have read and accepted the published version of the manuscript:** Casanoves-Boix, Javier, Cruz-García, Ana and García-Lafuente, Sonia.

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