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Retail practices for plant-based meat alternatives in Italy

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Abstract

Purpose – This study explores in-store retail sales practices for alternative protein products in Italy, with a focus on plant-based meat alternatives (PBMAs) compared to conventional meat products. It also investigates PBMA across different brand and business protein orientations to uncover disparities in retail practices, with attention to conventional and discount retailing.

Design/methodology/approach – Data are collected in Bologna, a mid-size metropolitan area in Italy, during autumn 2023. The methodology involved conducting in-person store audits across ten supermarkets and hypermarkets. The data collected encompasses variables such as protein type, product format, price, promotions, product shelf placement and protein orientation. Data elaboration includes Analysis of variance (ANOVA) testing and multivariate linear regression.

Findings – Results support that retail management practices price PBMA higher, offer fewer promotions and place them in the "ready-to-eat" department versus the meat department, if compared to conventional meat products. This suggests that Italian retailers do not consider PBMA as a direct alternative to the meat, but rather as a distinct food product category with its own retail management practices. The study also reveals that PBMA brand and business protein-orientation management practices influence pricing and sales. Retailers' managerial approach shapes PBMA sales and consumer purchasing behavior.

Originality/value – The study is pioneering research on retailers and PBMA, a rapidly expanding food category. It focuses on Italy, a country where interest in alternative protein products remains limited but shows significant potential for growth. Finally, it provides a detailed analysis of in-store retail food management practices balancing PBMA with conventional meat products.

Keywords Promotion, Price, Protein, Plant-based meat alternatives, Retail management strategies, Store department

Paper type Research paper

1. Introduction

In recent years, the market for alternative protein sources has experienced significant growth, achieving a Compound Annual Growth Rate of 5.8% (Statista, 2024). This reflects a relevant shift in consumer preferences and transformations within the global food industry. Forecasts suggest that this upward trend will continue, with the market share of alternative protein products expected to rise from the current 2–11% of the global market by 2035 (BCG, 2021). Alternative protein products aim to provide protein sources that do not rely on traditional animal agriculture. These include plant-based protein products that seek to replicate the sensory and nutritional attributes of animal-derived foods. Among the various categories of alternative protein, plant-based protein products have shown the most substantial growth. However, they face the ongoing challenge of establishing consistent terminology that is

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broadly accepted across both the alternative protein and the conventional animal-based markets (Ketelings *et al.*, 2023).

This research study, consistent with past research, refers to plant-based meat alternatives (PBMAs) (Choudhury *et al.*, 2020; Coffey *et al.*, 2023; Andreani *et al.*, 2023). PBMAs are processed food products designed to substitute meat by replicating the taste, texture and appearance of animal-based products (Curtain and Grafenauer, 2019). The success of these products lies in their appeal not only to vegetarian or vegan consumers but also to flexitarian and conventional consumers (Choudhury *et al.*, 2020; McClements, 2023). Their meat-like characteristics allow them to seamlessly replace meat in a wide variety of recipes and dishes (Coffey *et al.*, 2023), enabling consumers to incorporate these products into their dietary routines without compromising their usual eating habits (McClements, 2023).

Despite the strong growth in demand, the PBMA market still faces several barriers of economic, financial and political nature. In particular, price is the most prominent one (Coffey *et al.*, 2023), as PBMAs are too expensive compared to conventional meat, reducing consumer access (Morais-da-Silva *et al.*, 2022). Several food system actors can influence the price. The current research study focuses on retailers' role. Indeed, among all the incumbent companies attracted by the PBMA market's potential, retailers are among the most crucial players for their capability of introducing PBMA into the mass market (Bulah *et al.*, 2023).

Although retailers have the potential to lead dietary changes (Saarijärvi *et al.*, 2024) and to support the development of the PBMA market, existing literature primarily delves into consumer perception and behavior toward PBMA (Anıl Konuk, 2021). Only a few studies address retail PBMA commercialization practices, often focusing on single aspects or limited comparison with conventional meat (Curtain and Grafenauer, 2019; Brooker *et al.*, 2022; Glufke Reis *et al.*, 2023). To fill this gap in the literature, the current study aims to explore (1) what are retailers' selling practices of animal-based products compared to PBMA, and (2) what are the factors that impact the pricing practices of PBMA. In particular, it seeks to explore how retailers sell PBMA, with a focus on PBMA pricing, promotions, brand protein focus and in-store shelf positioning. The study focuses on Italy, as a case study.

2. Literature review

2.1 The evolution of the PBMA market

The significant growth in the PBMA market stands out among alternative protein foods (Onwezen *et al.*, 2021). This success can be attributed to a multitude of factors deeply rooted in human history and culture. Throughout ancient civilizations, plant-based diets and products such as tofu, tempeh and seitan, have been prominent staples, with modern Mediterranean diets predominantly consisting of plant-based foods (Arora *et al.*, 2023).

The 1960s witnessed a surge in vegetarian consumers, prompting the development of textured vegetable protein (TVP), an innovation that endowed plant-based products with meat-like texture characteristics, known as the first-generation products (Vallikkadan *et al.*, 2023; Arora *et al.*, 2023). Until the early 1990s, the industry predominantly offered these first-generation products, characterized by a limited range of plant-based meat substitutes primarily reliant on available processes and ingredients, such as TVP (Riaz, 2011). The turn of the century saw the advent of second-generation meat substitutes, driven by advanced food technologies. These innovations enabled second-generation products to closely replicate the taste, texture and appearance of animal meat, marking a significant leap in the plant-based meat landscape (Bulah *et al.*, 2023).

The second-generation products, referred to as PBMA in this study, have experienced burgeoning popularity. According to Bulah *et al.* (2023), this popularity can be divided into two phases, marked by significant events. The first phase, spanning from 1990 to 2006, was characterized by crises in livestock supply chains, notably the BSE (Bovine spongiform

encephalopathy) crisis. These crises catalyzed heightened public concerns regarding the health and safety aspects of conventional meat products, favoring the growth of the meat alternative market. The second phase, encompassing the period from 2006 to 2020, witnessed a significant uptick in environmental consciousness (Steinfeld *et al.*, 2006).

Since the conclusion of the second phase in 2020 the plant-based food market, with PBMA at its core, has experienced rapid growth, increasing from a market value of $29.4 billion to $64.7 billion, effectively doubling in size (Statista, 2024). This upward trajectory is expected to persist, with projections indicating that the market will surpass $100 billion by 2027 and is anticipated to reach $161.9 billion by 2030 (Statista, 2024). The expansion has been fueled by marketing strategies, especially communication efforts, of food companies.

2.2 Marketing strategies for plant-based meat alternatives market

Past literature supports that when companies introduce new products like PBMA to the market, they need to position them in relation to existing products and categories, taking into account two key aspects (Callon, 2007, 2008). On the one hand, market creation requires new products to be somewhat comparable to existing goods, as new markets are typically developed through the expansion and revitalization of established ones. In the case of PMAs, the development of familiar formats such as burgers, cutlets and meatballs confirms this phenomenon. On the other hand, in order to stand out from other options and meet specific consumer needs, products need to be uniquely positioned (Lonkila and Kaljonen, 2022). This involves utilizing marketing and communication strategies to introduce and promote PBMA products to a wider audience. To accomplish this, PBMA companies rely on promising narratives, which are strategically developed to differentiate their products and ensure widespread market acceptance (Ransom, 2021; Sexton *et al.*, 2019).

As identified by Sexton *et al.* (2019), these narratives typically encompass five key product values aimed at effectively positioning their products in the market. First, these products are promoted as healthier options, being safer and more nutritious than conventional meat, free from harmful ingredients and capable of reducing the risk of chronic diseases. Second, they are presented as a solution to global food security challenges, aiming to feed a growing population. Third, PBMAs emphasize their environmental benefits and animal welfare, highlighting their sustainability by reducing greenhouse gas emissions, and land and water use, while offering a more ethical food system without the need for animal slaughter. Fourth, the production processes of PBMA are framed as safer and more controlled than traditional animal-based systems. Finally, these products are designed to target consumers who enjoy the traditional meat consumption experience but are open to alternatives. This last key product value is central to the PBMA marketing strategies of companies. As Ransom (2021) notes, PBMA companies do not seek to market their products as mere "alternatives," but rather as direct analogs, aiming to recreate the traditional meat-eating experience for consumers. Consistently, some prominent PBMA companies, such as Beyond Meat and Impossible Foods, advocate for a consumer-driven approach, offering plant-based alternatives that align with consumers' existing preferences rather than encouraging them to alter their diets. The aim is to attract consumers by providing products that mimic the taste and experience of traditional meat, promoting the concept of "separating meat from animals" (Hincks, 2018; Park, 2019).

In conclusion, PBMA companies simultaneously strive to convince consumers that their products are equivalent to traditional meat in terms of taste and texture, while also positioning them as superior in terms of sustainability, food security, food safety and nutritional value.

2.3 Retailers' strategies for plant-based meat alternatives market

Food retailers have the capability to enable or restrict the marketability of PBMA, influencing both production and sales (Gravely and Fraser, 2018). According to the theoretical framework of global value chains, retailers, especially large supermarket chains, can assume a leadership role in the value chain by influencing PBMA suppliers' activities, production chains and

marketing strategies (Gereffi *et al.*, 2005). As highlighted by past research, retailers play a critical role in shaping food purchasing behaviors, especially at the point of sale (Martin *et al.*, 2021). For example, PBMAs often have higher price tags compared to their animal-based counterparts (Morais-da-Silva *et al.*, 2022). This highlights the importance of comparing traditional retailers, which prioritize quality and service, with discount retailers, which primarily compete on price (Jung *et al.*, 2022; LeBel, 2016).

Additionally, it is important to note that the company's brand-business protein orientation can influence the retailers' selling strategies. Although there is limited literature on this issue, a few studies provide valuable insights (Gravely and Fraser, 2018; Mohorčich and Reese, 2019; Vandenbroele *et al.*, 2021; Coucke *et al.*, 2022; Glufke Reis *et al.*, 2023; LeBel, 2016; Jung *et al.*, 2022). First, large mixed food incumbent companies entering the PBMA market often compete with small businesses and startups active in the PBMA market from a position of advantage. Indeed, large mixed incumbent food companies can capitalize on pre-existing relationships with retailers, whereas PBMA-focused companies are newcomers to the scene (Mohorčich and Reese, 2019). This difference may pose a barrier to access to supermarkets that is vital for the success of PBMA-focused companies (Glufke Reis *et al.*, 2023). Second, PBMA commercialized by large mixed incumbent food companies tends to have lower prices and more promotions and discounts compared to PBMA-focused companies' products, making the former more appealing to consumers (Gravely and Fraser, 2018; Glufke Reis *et al.*, 2023). Third, the entry of private labels into the PBMA market has intensified price competition (Martin *et al.*, 2021). Private labels not only offer similar quality (Chen *et al.*, 2023) but also present greater price advantages compared to production companies (Garrido-Morgado and González-Benito, 2024; Gielens *et al.*, 2021).

Finally, visibility in supermarkets is another key factor for mainstreaming PBMA. Several studies suggest that enhancing the visibility and shelf positioning of these products alongside meat analogs could significantly boost sales by attracting omnivores and flexitarians who might not be aware of their existence (Gravely and Fraser, 2018; Glufke Reis *et al.*, 2023; Coucke *et al.*, 2022). This strategy, known as "nudging" (Vandenbroele *et al.*, 2021), involves placing these products in the butchery department to subtly influence consumer behavior without changing economic incentives or limiting choices. Vandenbroele *et al.* (2021) found that positioning meat analogs alongside traditional meat products leads to an increase in sales of 67%. However, compared to animal-based products, PBMA occupy significantly less shelf space and are often placed in separate retailers' departments (Gravely and Fraser, 2018). Retailers may hesitate to use the "nudging" strategy and discourage meat purchases because they fear negative impacts on sales and customer loyalty (Gravely and Fraser, 2018).

3. Methods

3.1 Data collection

The data collection was developed focusing on a geographical area with conventional and discount stores. These fall under the classifications of supermarkets and hypermarkets, that is large self-service retail outlets offering a comprehensive range of products. The choice to focus solely on supermarkets and hypermarkets is based on their significant presence in the retail landscape of the Bologna metropolitan area, and their ability to offer a broad variety of products, which makes them ideal for comparative analysis of animal- and plant-based protein products. The inclusion of ten stores in this study allowed us to identify a variety of products fitting the required criteria without repeating brands. This decision ensures the analysis avoids any risk of double counting product data across different branches of the same retail chain. The selected stores are geographically distributed to account for variations in location and store environments, providing a nuanced understanding of the retail food offer while maintaining homogeneity in the study area (Figure 1). In addition, the double stores' categorization allows to focus on different aspects: while conventional and discount stores refer to pricing practices and product range, supermarket and hypermarket classifications focus on the size and variety

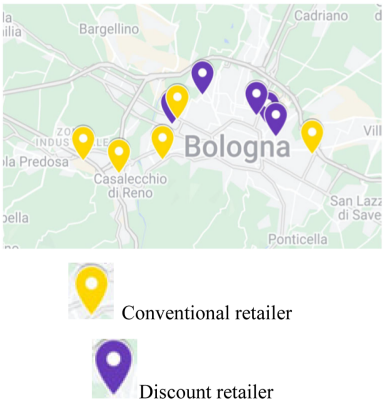

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Figure 1. Map of supermarkets

of products availability. A supermarket generally features a sales area exceeding 400 square meters, providing a broad selection of food products, mostly pre-packaged, as well as nonfood items such as cleaning and hygiene products for the home, personal care and pet essentials (NACE code 47.11.2). A hypermarket has a sales area exceeding 2,500 square meters and is organized into food and no-food departments (NACE code 47.11.1) (Istat, 2022). For consistency, the term "supermarket" will be used throughout the remainder of the study. This data collection approach allows for a comprehensive analysis of store types, their pricing practices, and product offerings. The time was limited from September 29th to October 19th, 2023. Focusing data collection in all stores within a specific timeframe benefits research by ensuring data consistency and comparability. When points of sale are observed during the same period, researchers can rely on more uniform data such as promotional periods, seasonality or market trends mitigating uncertainty due to uncontrollable external variables. This reduces noise and allows researchers to draw more accurate conclusions about differences between stores. This approach enhances the reliability and accuracy of the research findings.

The data collection involved in-person store auditing, a widely recognized method in retail and consumer behavior research for gathering first-hand data on product characteristics (Curtain and Grafenauer, 2019; Gravely and Fraser, 2018). The store audits were carried out in ten supermarkets, selected through purposive sampling to represent both conventional and discount supermarket categories, ensuring a balance between store types and locations. The auditing tool used was a structured observation form that included pictures of the products, taken in order to possess evidence in case of missing or unclear information. To enhance the reliability of the data collection process, the auditing tool followed a predefined set of variables and used a detailed coding system to standardize the recording of each product's information (Table 1). This system allowed for accurate and consistent classification of products across stores. The validity of the tool was ensured by conducting a pilot test in one store, which helped refine the auditing form and ensure that all variables were clearly defined and consistently applied during data collection. Each audited product was systematically recorded and stored in a tailor-made database, developed specifically for this study to organize and manage the data effectively.

The collected food product variables are: type of protein, product format, market price, promotion, store department positioning, brand, retail type and brand and business protein orientation (Table 1). In more detail, food product profiling included the division of the

Table 1. Data collected

Variables	Measurements
Type of protein	0 = Animal-based 1 = Plant-based
Product format	0 = Burger 1 = Cutlets 2 = Meatballs
Price	Product price per kg
Promotion	0 = Absence 1 = Presence
Store display location	0 = Meat department 1 = Dairy department 2 = Ready-to-eat – Vegetarian Department 3 = Ready-to-eat – Mixed Department
Brand	Commercial brand
Retail type	0 = Discount 1 = Conventional
Brand-business protein orientation	0 = Animal-based only 1 = Plant-based only 2 = Mixed-protein orientation (animal- and plant-based) 3 = Private label

Source(s): Authors' own work

products into two macro-categories according to the protein type – animal- and plant-based – thus defining a clear structure for analysis. For plant-based products, this study focuses on PBMA by categorizing them in accordance with the definitions used in the literature which define them as processed products designed to replicate the taste, texture, and appearance of animal-based products (Curtain and Grafenauer, 2019; Choudhury *et al.*, 2020; Coffey *et al.*, 2023). Furthermore, the same food formats – meatballs, cutlets and burgers – are collected for both protein types to ensure a consistent and comparative basis (Brooker *et al.*, 2022; Glufke Reis *et al.*, 2023). This approach facilitates a meaningful examination of the food products made with the two protein types allowing for a comprehensive assessment of similarities and differences in specific product formats (Glufke Reis *et al.*, 2023; Gravely and Fraser, 2018). The price variable collected in this study represents the market price available to consumers at the time of data collection. This includes both regular and promotional prices, as displayed in stores during the audit period. Prices were recorded in euros (€), the standard currency in Italy, to ensure consistency and facilitate clear interpretation of results in the subsequent analysis. By including both regular and promotional prices, the analysis provides a more comprehensive view of the pricing practices actually applied to animal- and plant-based products. The distinction between regular and promotional prices is taken into account during the regression analysis to avoid misinterpretation of their impact on product comparisons. Finally, the brand and business protein orientation distinguished the products into brand and businesses with a single type of protein, i.e. animal- or plant-based, and businesses with mixed-protein orientation, that is both animal-based and plant-based products (Glufke Reis *et al.*, 2023). All variables are examined for both protein types, enabling a comparative approach aimed at understanding how sales practices are applied to different product categories.

3.2 Data elaboration

The data elaboration process consist of three primary steps: a general and a protein-specific descriptive analysis, Chi-square and ANOVA testing and model fitting. First, the data elaboration involves conducting a descriptive analysis to explore the characteristics of each collected variable. This analysis is conducted on the full dataset, and then separately for the

two main product groups – animal-based and plant-based. This step helps answer the first research question by providing an overview of the key variables that define the selling practices for each product group. Second, the Chi-square test of independence and the ANOVA analysis of variance (applied accordingly to the variable type, categorical or continuous, and, accepted with p-values<0.05) is applied to discern statistically significant differences between the animal-based and plant-based product groups. By using ANOVA, the study directly addresses the first research question, identifying whether retailers' selling practices, such as pricing and in-store positioning, vary significantly between animal-based products and PBMA. This allows for a comparative understanding of how retailers approach the sale of these products. Third, the study focuses on plant-based proteins to assess whether the products' characteristics influence their pricing. This phase employs a linear regression model to estimate the linear multivariate association among the collected variables, with the dependent variable being the product price level. During the model elaboration phase, the initial exploration involves examining the relationship between the variables of interest and the associations between two or more of the variables. Bivariate analysis is conducted through cross-tabulations and the utilization of a Chi-squared test (χ^2, accepted with p-values < 0.05), revealing the interrelationships between the independent variables. This test supports a preliminary exploration of the factors and characteristics that could impact the analysis of the pricing and sales practices of PBMA, as outlined in the second research question. To detect potential effect modifiers, the study investigates interactions between pairs of independent variables and the dependent variable. However, none of these relationships were deemed significant and therefore not included in the model. Additionally, the model construction follows a forward selection method, and a multicollinearity test is conducted by calculating tolerance and Variance Inflation Factor (VIF) values (accepted with tolerance > 0.01 y VIF < 5). Among the model parameters, β values and the significance of each variable are scrutinized. Data analysis is performed using IBM SPSS Statistics (version 26, Armonk, NY, USA).

4. Results

The final sample consisted of 416 different products, balanced between plant-based (43.3%) and animal-based (56.7%) (Table 2). Most products are burgers (53.8%), while cutlets and meatballs account respectively 33.4% and 12.7%. Approximately 70% of the products are sold in conventional supermarkets, and almost 50% of them are private-label products. Plant-based products are mainly positioned in the ready-to-eat department, mostly next to mixed vegetarian and animal-based ready-to-eat products (36.3%). As there is no variation in the plant-based products store positioning, this variable is not going to be further included in the study analysis.

4.1 Retailer sales management practices of animal-based versus plant-based products

The comparison of the two groups of products – animal-based and plant-based – has highlighted significant differences in retailers' sales management practices (Table 3). The Chi-square test revealed a statistically significant difference in the distribution of product formats between the two groups ($X^2(2) = 7.027$, $p < 0.03$), as animal-based products have a higher availability of burgers and cutlets compared to plant-based products. Additionally, the one-way ANOVA test applied reveals that price differences are also significant between the two groups ($F(138, 0.63) = 11.06$, $p < 0.001$), with plant-based products costing an average of 16.18 euros per kg, while animal-based products cost an average of 13.57 euros per kg. Price promotions also differ significantly between the groups ($X^2(1) = 5.958$, $p < 0.015$): there are 84 promoted animal-based products compared to 44 promoted plant-based products.

The difference in distribution between the two types of retail outlets does not vary significantly between the two protein-type foods, as indicated by the non-significant p-value.

Table 2. Products' profile

Variable description	% of the total	A.V.
Type of protein		
Plant-based	43.3	180
Animal-based	56.7	236
Total	100.0	416
Product format		
Burger	53.8	224
Cutlets	33.4	139
Meatballs	12.7	53
Total	100.0	416
Promotion		
No	69.2	288
Yes	30.8	128
Total	100.0	416
Store display location		
Meat department	56.7	236
Dairy department	0	0
Ready-to-eat – vegetarian department	7.0	29
Ready-to-eat – mixed department	36.3	151
Total	100.0	416
Retail type		
Discount	29.6	123
Conventional	70.4	293
Total	100.0	416
Brand-business protein orientation		
Animal-based only	26.2	109
Plant-based only	5.0	21
Mixed-protein orientation	34.4	143
Private-label	34.4	143
Total	100.0	416

Source(s): Authors' own work

However, a significant difference ($X^2(3) = 208.49$, $p < 0.001$) exists in the brand and business protein orientation of the products. Animal-based products are equally commercialized by private-label brands and brands that exclusively commercialize animal-based products (101 and 109, respectively). In contrast, plant-based products are predominantly commercialized by mixed-protein brands and to a limited extent by private labels.

Overall, the results indicate that animal-based products have a higher availability of formats compared to plant-based products, while plant-based products are generally more expensive and less promoted. While the distribution between retail outlet types does not differ significantly, a notable difference exists in the commercialization sources of the two product types.

4.2 Retailer pricing practices of plant-based products

The regression model focuses on plant-based products (180 cases), with the aim to understand the factors influencing the PBMA price at the retail level. The independent variables are price promotions, product format, retail type, and business production type (Table 4). Except for the format of meatballs, all variables are significant with p-values <0.05. An analysis for multicollinearity was conducted, revealing no evidence of multicollinearity, as indicated by

Table 3. Chi-square and one-way ANOVA analysis

	Plant-based products	Animal-based products	Test result (χ^2 = Chi-square test; F = one-way ANOVA test)	p-value
Total number	180	236		
Price per kg (mean)	16.18	13.57	$F(138, 0.63) = 11.06$	0.01
Product format				
Burger	100	124	$\chi^2(2) = 7.027$	0.03
Cutlets	50	89		
Meatballs	30	23		
Price promotion				
No	136	152	$\chi^2(1) = 5.958$	0.015
Yes	44	84		
Retail type				
Discount	51	72	$\chi^2(1) = 0.232$	0.63
Conventional	129	164		
Brand-business protein orientation				
Animal-based only	0	109	$\chi^2(3) = 208.49$	<0.001
Plant-based only	21	0		
Mixed-protein orientation	117	26		
Private label	42	101		

Source(s): Authors' own work

Table 4. Regression model

	Beta	Standard error	p-value
Price promotion	−1.25	0.54	0.02
Format – cutlets	1.36	0.54	0.01
Format – meatball	0.82	0.63	0.19
Retail type	5.25	0.92	<0.001
Business production – private label	−3.76	0.94	<0.001
Business production – mixed	−3.08	0.74	<0.001

$R^2 = 0.52$, $F(7, 237.93) = 26.72$, model significance p-value = 0.001

Source(s): Authors' own work

the highest estimated VIF value of 2.63 and tolerance levels ranging from 0.377 to 0.911. Interaction effects between independent variables were tested with a two-way ANOVA, but no significant additional information was found. The final fitted model is statistically significant, with a p-value <0.01, an R^2 of 0.52 and a $F(7, 237.93) = 26.72$, $p = 0.001$.

Results support that the presence of price promotions lowers the product price, with a beta coefficient of $b = -1.25$. The type of retail has the most significant impact, accounting for a $b = 5.25$ unit increase when moving from discount to conventional retail. Among the product formats, cutlets increase the price by $b = 1.36$ units compared to burgers. The brand-business protein orientation also impacts the final price. Compared to brands that only commercialize plant-based products, brands with mixed commercialization lines and private-label brands have beta coefficients of $b = -3.08$ and $b = -3.76$, respectively, indicating that these types of brands contribute to lower product prices.

The analysis supports that various factors significantly influence retailers' pricing practices of plant-based products. The type of retail outlet significantly influences pricing, with conventional retailers typically charging higher prices than discount retailers, confirming that discount retailers can effectively target price-sensitive consumers. Additionally, retailers' price promotions are crucial for lowering prices, underlining that offering discounts and special offers may boost consumer adoption of plant-based products. Given that plant-based products are often seen as novel, promotions are essential for capturing consumer interest and push purchases. Finally, the type of brand-company protein focus is a critical factor. Brands with mixed commercialized lines or private labels tend to price plant-based products lower than those exclusively commercializing plant-based items.

5. Discussion

PBMA companies aim to compete with traditional meat product producers, providing food products that replicate animal-based meat products (Sexton *et al.*, 2019; Ranson, 2021). This approach envisions offering alternatives that limitedly change consumers' eating habits. The present research applies this perspective exploring how Italian retailers commercialize PBMAs versus animal-based products. In addition, the study explores the factors that influence the sales and pricing practices of PBMA. To streamline the discussion, the findings are discussed in response to the two research aims.

The study expands past research study findings on the differences in sales management practices between animal-based products and PBMA. First, results corroborate existing literature supporting that PBMAs tend to be more expensive than animal-based products (Morais-da-Silva *et al.*, 2022; Coffey *et al.*, 2023; Newton *et al.*, 2024). Price is among the most important factors for product and store choice (Loy *et al.*, 2020) differentiating PBMA from conventional meat products and leading to a different consumer perception (Blanco-Gutiérrez *et al.*, 2020). Second, findings confirm a difference in promotions depending on the type of protein (Gravely and Fraser, 2018; Glufke Reis *et al.*, 2023), with animal-based products being in percentage more promoted (36%) than plant-based products (24%). Previous research suggests that promotions have little to no positive effect on brand preference for new products and that consumers often associate frequently price promotions, with lower product quality (Del Vecchio *et al.*, 2006; Mishra *et al.*, 2020; Zheng *et al.*, 2022). Consequently, PBMA companies advocate for different marketing strategies, emphasizing their product values (Brooker *et al.*, 2022; Sexton *et al.*, 2019). Third, results show that PBMAs are shelf-positioned differently in stores compared to meat products, as they are placed in the "ready to eat" department. Retailers may choose to place PBMA away from the meat department in order to respect the sensitiveness toward animal welfare of vegetarians and vegans. Nevertheless, the literature suggests that this management practice can actually reduce sales by alienating curious consumers or flexitarians, who are the primary target market for PBMA (McClements, 2023). Moreover, placing products in close proximity supports efficient information processing and reinforces the perception that these products belong to the same category, as supported by the perceptual grouping theory (Tofighi and Grohmann, 2024). Fourth, confirming Reis' research (2023), animal-based protein-oriented brands are significantly more prevalent in supermarkets in terms of quantity compared to plant-based protein-oriented brands, and the burger is the most common format, followed by cutlets and meatballs, for both meat and PBMA. Finally, the study confirms that in supermarkets animal-based protein-oriented brands are significantly more prevalent in terms of quantity compared to plant-based protein-oriented brands (Gravely and Fraser, 2018; Mohorčich and Reese, 2019). This result suggests that retailers believe that animal-based products are more favorable for food market offers. They engage in more commercial partnerships with animal-based products than with PBMA, as evidenced by the fact that private-label products for animal-based proteins are twice as numerous compared to those for PBMA.

The second research aim delves into the factors influencing retailing sales and pricing practices of PBMA. One critical aspect identified in the literature (Gravely and Fraser, 2018; Glufke Reis *et al.*, 2023) and confirmed by the results of this study is the type of brand-business protein orientation. Mixed brand-businesses commercializing both animal-based and PBMA, and private labels tend to price PBMA lower than those exclusively commercializing PBMA. This could be attributed to pre-existing relationships within the supply chain, giving the former a competitive advantage over the latter. Findings on price variations and promotional strategies across protein types and producer brands gain added significance when considering cross-price effects (Pilar Martínez Ruiz and Mollá Descals, 2008). Specifically, the higher prices and less frequent discounts of exclusively plant-based brand PBMA contribute to an increased demand for PBMA products offered by mixed-protein brand-businesses. As highlighted by past literature, this price gap makes the latter more appealing to price-sensitive consumers (Pilar Martínez Ruiz and Mollá Descals, 2008). Moreover, this study's results highlight that the choice of retail outlet impacts pricing, with conventional retailers levying higher prices compared to discount retailers (Gravely and Fraser, 2018; LeBel, 2016). If the aim of PBMA-focused companies is to position their products as analogous to animal-based products by reducing the price gap, a strategic choice may envision the establishment of specific agreements with discount retailers.

5.1 Managerial implications

PBMA companies seeking to enhance sales through pricing strategies may undertake some key actions. First, finalizing agreements with various types of retailers, especially discount retailers, is an essential step for the price gap reduction with animal-based products (Mohorčich and Reese, 2019). Moreover, plant-based businesses should focus on increasing the presence of PBMA private-label products in supermarkets, lowering the average perceived price of the product category. This strategy could also benefit the plant-based protein-oriented brands, which could in turn emphasize other distinguishing attributes to justify their premium pricing (Padamali and Fernando, 2016; Cambridge, 2024). Additionally, although promotions might influence negatively the perceived quality of products, PBMA firms should increase promotional practices due to their significant impact on pricing. Collectively, these measures have the potential to lower product prices, enhance consumer interest, and strengthen the positioning of PBMAs as viable alternatives to conventional meat (Szenderák *et al.*, 2022). Furthermore, if PBMA companies want to justify the price gap with animal-based products, in addition to emphasizing product values, they should prioritize transparency by establishing and effectively communicating stronger connections to the agricultural sector. As highlighted by Ransom (2021), PBMA marketing often lacks a direct link to farms and agriculture – a connection that is common in the promotion of animal-based products. This gap can make PBMA seem overly processed, with limited visibility into ingredient sourcing (Sexton *et al.*, 2019). Establishing partnerships with farmers and clearly highlighting ingredient origins can enhance the authenticity of PBMA products, increasing transparency, consumer trust, and the perceived quality of these offerings.

5.2 Further research

This study represents the first investigation into the sales and pricing management practices of PBMAs among Italian retailers, comparing them with animal-based products and branded proteins. Future research could expand this work by examining additional factors such as product packaging details (e.g. claims, nutritional values), shelf space allocation, and country of origin. Moreover, the impact of price promotions and private-label commercialization deserves further exploration, especially in the context of differences between animal- and plant-based proteins. To better understand retailers' strategies in countries with rich culinary traditions, it is important to consider geographical and cultural contexts (Chen *et al.*, 2024). Comparative studies across different regions could offer a more holistic view of the global plant-based market. Additionally, future research should investigate the reasons behind

pricing dynamics and examine consumer responses to various pricing and promotion strategies. This would provide valuable insights into the development of effective retail strategies in diverse markets.

6. Conclusions

This research investigates retailers' sales and pricing management practices for PBMAs, addressing a gap in the literature that has primarily focused on consumer behavior rather than the retailing role in PBMA market development. The study highlights the interplay of product characteristics and identifies key factors influencing PBMA pricing, with retailer type and private-label status emerging as the most significant. Comparisons with animal-based products revealed distinct retail dynamics, despite similarities in product formats, underscoring the need to approach PBMA within its unique context. This emphasizes the importance of PBMA-tailored retail management and practices. The findings also provide a foundation for policymakers to support PBMA adoption by focusing on reducing prices, increasing availability and fostering diversification through research investments, funding, capacity building and cooperative efforts. Ultimately, the study enhances understanding of managerial practices that shape food culture and dietary behavior, encouraging consumers to view PBMA as a viable alternative to animal-based products rather than merely as convenience items.

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