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Effectiveness of leaflet advertising in the retail sector in Portugal: A behavioral perspective

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Abstract

Over the past few decades, the retail sector in Portugal has undergone significant transformations. At the same time, the evolution of modern behavioural economics has introduced a new approach to understanding alternative consumer behaviour patterns. This approach combines traditional economic theories based on rational decision-making with insights from behavioural economics, highlighting the growing importance of the retail sector in the Portuguese economy and the increasing prevalence of promotional activities in major retail outlets. The primary objective of this study is to examine consumer behaviour within the Portuguese food retail sector from a behavioural perspective, focusing on how consumer decision-making is influenced by the presence of promotional leaflets and assessing their effectiveness. To achieve this, a questionnaire was used to gather data on consumer choices, which were then analyzed using the Ordered Probit model to determine if the observed behaviours align with the theoretical framework. The findings reveal that leaflet advertising influences consumer purchasing decisions, demonstrating a positive level of reliability. Additionally, the study identifies that endogenous and exogenous factors play a significant role in shaping consumer responses to leaflet advertising, although these factors do not always lead to uniform behaviour.

Keywords: Behavioral Economics, Consumer Behavior, Retail Sector, Advertising, Ordinal Regression
Jel codes: C35, D01, D11, D91

1. Introduction

Temporary price reductions, or more broadly, sales promotions, have become increasingly prevalent across a range of products in supermarkets and hypermarkets. This development has enhanced customer loyalty within the large-scale retail sector (Deng, 2005). Concurrently, there has been a notable escalation in advertising efforts within retail, with printed flyers remaining among the most widely employed media by supermarkets and hypermarkets. Flyers represent a cost-effective mechanism for communicating pricing and product information, enabling retailers to reach a broad consumer base while affording consumers access to pertinent product details without incurring additional research costs (Lung, 2005).

Therefore, advertising functions not only as a medium for product or service information but also as a persuasive instrument to influence purchase decisions (Niazi et al., 2012). This process intrinsically involves the study of

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consumer behavior - particularly the examination of mental and emotional processes - to elucidate why consumers react in specific ways under particular circumstances (Ayanwale et al., 2005).

At this juncture, behavioral economics emerges as an essential field for investigating consumer behavior. Integrating realistic psychological assumptions with traditional economic theory bridges the gap between psychology and economics. This interdisciplinary perspective fosters a more comprehensive understanding of conscious and unconscious influences on consumer decision-making, extending beyond the conventional scope of marketing strategies.

Given these considerations, the present investigation is both timely and relevant. It aims to evaluate the effectiveness of flyer advertising within Portugal's rapidly evolving retail sector—a sector that, akin to trends observed in other developed nations, has undergone significant transformation in recent decades. This study is fundamentally anchored in the principles of behavioral economics.

The primary objective of this analysis is to examine flyer advertising's effectiveness in the Portuguese retail sector through the lens of behavioral economics. To achieve this, several research questions have been formulated. Specifically, through a questionnaire-based survey, this investigation seeks to elucidate:

(i) the impact of flyer advertising on consumers' purchasing decisions;

(ii) the degree of trust consumers place in flyer advertising relative to other advertising forms; and

(iii) the endogenous and exogenous factors most significantly influence consumer responses to flyer advertising in large-scale retail outlets.

The study begins with an introductory section that outlines its context, significance, objectives, and research questions and provides an overview of its structure. The following chapter contextualizes and characterizes Portugal's retail sector by analyzing key stakeholders and recent developments. Chapter Three presents a literature review that discusses the theoretical foundations of behavioral economics and examines consumer behavior and economic theories within the large-scale retail context, focusing on the determinants of flyer advertising. Chapters Four and Five detail the empirical methodology, including data collection, sampling, statistical techniques, and the application of the Ordered Probit model. These chapters first characterize the sample using socioeconomic, sociodemographic, and behavioral parameters and then analyze the econometric results. The study concludes with a synthesis of findings, a discussion of its limitations, contributions for future research, and recommendations for further investigations.

2. Literature Review

2.1. Behavioral Economics and Consumer Behavior

Behavioral economics emerged to integrate psychological insights into economic theory to develop models that more realistically describe individual decision-making. Adopting a behavioral perspective enriches the underlying psychological assumptions of traditional economic models, thereby fostering a reintegration of psychology and economics (Camerer, 1999). Although this modern incarnation, introduced in the 1980s, initially encountered resistance from proponents of the neoclassical model, Thaler (2016) argues that economics should integrate diverse theories. He contends that normative models—which describe optimal solutions—should be complemented by descriptive models that capture actual behavior. Similarly, Albanese (2006) observes an expansion in the behavioral foundations of economic analysis, incorporating consumer behavior patterns that had previously been excluded from the neoclassical notion of the rational consumer. Consequently, behavioral economics has evolved from a peripheral label to a central component of mainstream economic thought (Camerer, 1999).

Tversky and Kahneman (1981) emphasize that a descriptive understanding of human decision-making must engage with the psychology of choice, thereby addressing normative aspects of decision-making. MacFadyen (2006) maintains that the essence of behavioral economics lies in basing scientific inquiry on realistic representations of individual behavior. This approach has led many scholars to expand the neoclassical rational choice model to incorporate greater psychological realism. As Simon (1956) noted, characterizing consumer behavior and rational choice establishes a natural confluence between psychological and economic theories, enriching our understanding of economic agents' actions (Thaler, 2016; Kaufman, 2006).

2.2. Consumer Behavior

2.2.1. Economic Theories Underpinning Consumer Decision-Making

The framing of decision problems significantly influences consumer perceptions and responses. Prospect theory (Tversky & Kahneman, 1981; Kahneman & Tversky, 1984) is particularly influential in this regard, positing that

consumers evaluate decisions regarding gains and losses relative to a reference point. Consumers typically demonstrate risk aversion when potential gains are comparable to those of riskier alternatives while risk-seeking behavior emerges when the expected gains justify the increased risk (Tversky & Kahneman, 1981). Tversky and Kahneman (1986) further distinguish a two-phase decision process: an initial framing based on habits and expectations, followed by an evaluation phase that compares values to determine the highest perceived benefit.

While Kahneman and Tversky (1979) criticized expected utility theory as a descriptive model under risk, Thaler (2016) suggests that prospect theory should be considered complementary to expected utility theory. The latter can be analyzed from two perspectives: the utility inferred from observed choices and the experiential utility derived from the quality and intensity of the outcome (Kahneman & Thaler, 2006; Kahneman & Snell, 1992; Kahneman et al., 1997).

Another relevant framework is the theory of reciprocity, which explains that individuals respond to kind or unkind actions with corresponding behavior (Falk & Fischbacher, 2006). Wulf et al. (2001) propose that this theory can elucidate consumer responses to retail investments, potentially fostering psychological bonds and enhancing loyalty.

2.2.2. The Context of Large-Scale Retail Outlets

Consumer behavior is not solely governed by deliberate, rational calculations but is often the result of a complex interplay of habits, impulses, and sometimes irrational responses (Viner, 1925). Applebaum (1951) asserts that studying consumer behavior requires identifying the consumers and understanding their behavior at the point of purchase. Schiffman and Kanuk (2000) note that consumer decisions regarding resource allocation—such as who, where, what, when, and how to purchase—are crucial for understanding behavior in large-scale retail settings.

Intrinsic characteristics, including gender, age, economic status, education, and religion, influence consumer behavior (Applebaum, 1951), and Cachinho (2002) argues that both objective and subjective factors (e.g., feelings, motivations, values) must be considered together. Applebaum (1951) further distinguishes between individual shopping habits developed through repetition and collective shopping patterns that emerge among groups of consumers.

Research by Rishi and Singh (2012) in the Indian retail sector identified three main factors influencing shopping patterns:

(i) physical factors (discounts, product variety, quality, store accessibility, visual merchandising);

(ii) social factors (salesperson behavior, influence of children); and

(iii) temporal factors (time spent purchasing, influenced by store location and parking facilities).

Applebaum (1951) also categorizes consumer shopping patterns based on factors such as purchase location, product types, timing and frequency of purchases, purchase methods, and responses to promotions. Consumer choices result from a blend of anticipated outcomes and external influences (Thaler, 2016). However, Niazi et al. (2012) found that while internal emotional factors significantly influence purchasing behavior, external environmental factors do not, suggesting that emotional responses may play a more decisive role.

As noted by Kahn and Schmittlein (1989), the choice of retail format often depends on the consumer's available time, with smaller stores preferred for daily needs and larger outlets chosen for planned purchases. The rise of large-scale retail outlets, such as hypermarkets, encourages consumers to patronize a single location for diverse shopping needs, thereby impacting shopping patterns (Applebaum, 1951).

2.2.3. Impulse Buying

Consumer decisions are frequently less deliberate and linear than assumed. Kahneman (2012) distinguishes between two thought systems: System 1, which is fast and intuitive, and System 2, which is slow and deliberate. Most consumer decisions are made using System 1, which often leads to impulse buying. Rousseau (1997) highlights impulse buying as a key feature of retail activity, characterized by unplanned purchases made in response to stimuli encountered at the point of purchase.

Berman and Evans (1998) argue that small-quantity selling and the inherent popularity of retail stores further foster impulse buying, a notion supported by Applebaum (1951) regarding in-store promotional actions. Although impulse purchases are common across sectors, they are particularly evident in food shopping (Kollat & Willett, 1967; West, 1951). Piron (1991) and subsequent authors (Giese & Cote, 2000) have classified impulse purchases based on the consumer's emotional or cognitive reactions. Iyer (1989) and Rook (1987) further refine

this concept by distinguishing between general unplanned purchases and those driven by an immediate, compelling urge.

2.3. Flyer Advertising in the Retail Sector

As defined by Niazi et al. (2012), advertising creates awareness of brands or products and influences purchasing decisions. Prabakaran (2012) adds that the primary function of advertising is to differentiate the advertised product, attract customer attention, and persuade purchase decisions. Consequently, advertising represents a crucial marketing communication process for retail companies, which allocate substantial budgets to achieve both short- and long-term strategic objectives. For example, Cardoso et al. (2017) note that in 2016, the retail sector in Portugal recorded the highest advertising investment—approximately one million euros, with around eight hundred thousand euros allocated to television.

Łodziana-Grabowska (2016) and Huml et al. (2015) argue that advertising not only shapes consumer needs and preferences in the short term by providing information and stimulating purchases but also reinforces long-term consumer loyalty through a strong corporate image. Advertising functions both to inform (by promoting product awareness, price, features, and quality) and to persuade (by fostering perceptions of product differentiation and brand loyalty) (Jayawardhana, 2013; Rauch, 2013). Diffney et al. (2013) further suggest that advertising may enhance consumers' perceived utility—for instance, by contributing to their social status.

Within retail, flyers represent one of the primary forms of advertising. Despite the rise of digital media, printed flyers remain effective by providing accessible price and product information without significant research costs (Lung, 2005). A 2014 study by the European LetterBox Marketing Association (ELMA), as reported by Mediapost (n.d.), found that flyers continue to be the preferred medium for receiving retail offers in Portugal (see Graph 4).

Huml et al. (2015) define flyers as an indirect distribution method—essentially a short-term sales promotion to stimulate purchases. Retail managers select products from various categories to feature in flyers, thereby aiming to boost sales and overall performance. Conversely, Łodziana-Grabowska (2016) observes that consumers often perceive their purchasing behavior as less influenced by advertising compared to that of others, raising questions about the true effectiveness of advertising in large-scale retail outlets. Additional authors (Huml et al., 2015; Niazi et al., 2012) emphasize that advertising decisions are fundamentally based on assumptions about consumer behavior. As Rothschild and Gaidis (1981) argue, behavioral learning theories can help structure advertising strategies to effectively influence consumer behavior.

Modern information processing technologies further allow retailers to refine their communication strategies by collecting detailed insights into consumer purchasing patterns, often through loyalty cards. This asymmetry of information, described by Kamenica et al. (2011) as adverse selection, enables retailers to tailor offers in ways that may be perceived as particularly attractive by individual consumers.

2.3.1. Determinants of Advertising Intensity

The intensity of advertising expenditure varies by sector, with certain industries—such as cosmetics, perfumes, and personal care—exhibiting high advertising-to-sales ratios due to the image-driven nature of purchase decisions (Leão, 2011). Conversely, in sectors like the automotive industry, where purchases are infrequent and involve considerable deliberation, companies invest relatively more in advertising for products that require less cognitive effort, making them more susceptible to advertising influences (Porter, 1974). Sectors characterized by rapid innovation also tend to invest heavily in advertising to continuously inform and persuade consumers (Leão, 2011).

Market concentration is another key determinant. On the one hand, a higher concentration may discourage advertising if firms fear retaliatory spending by competitors. On the other hand, high market concentration can enhance the margin between price and cost, thus incentivizing firms to invest in advertising to boost sales (Leão, 2011). The net effect depends on the relative strength of these opposing factors.

Advertising intensity is influenced by product characteristics, market dynamics, and competitive structures, which together determine the extent to which advertising investments can shape consumer behavior and enhance firm performance.

3. Contextualization of the Retail Sector in Portugal

According to the Portuguese National Statistics Institute (INE, I.P., 2016: 34), retail activity is defined as the "resale to final consumers (individuals, companies, or institutions) carried out in establishments, fairs, markets, at the consumer's domicile, by mail order, through itinerant sales, among other channels." Rousseau (1997: 40) further describes the retail sector as "the ensemble of all economic agents, whether individual traders or

companies, that sell products directly to final consumers through stationary or non-stationary points of sale, or through other in-store sales methods."

The Portuguese Competition Authority (AdC, 2010) characterizes food retail distribution as comprising activities related to acquiring food goods from suppliers for subsequent resale to the final consumer. Salgueiro (1996) adds that while the primary function of the retail sector is to facilitate consumer access to goods, modern retailing has evolved to not only provide accessibility but also to satisfy and create consumer needs.

Mulhern (1997) posits that retailing represents the culmination of the commercialization process, serving as the critical point of contact between consumers and the domains of production, communication, marketing, and customer service.

Portuguese legislation also contributes to this definition. Decree-Law No. 339/85 of 21 August 1985 (p. 2726) states that "retail commerce is practiced by any natural or legal person who, on a habitual and professional basis, purchases goods in their own name and for their own account and resells them directly to the final consumer," with the retailer defined as "the entity that conducts this commerce in a stationary manner, through establishments, shops, or fixed installations in covered markets."

Regarding the sector's composition, the AdC (2010) identifies several channels: the HORECA (Hotel, Restaurant, and Café) channel—supplied by wholesale commerce; traditional retail; regional retail chains; and large retail groups with nationwide networks operating formats such as minimarkets, supermarkets, and hypermarkets. This study focuses primarily on the latter. According to AdC (2010), the main players in the Portuguese food retail sector include groups such as Aldi, Auchan (operating under the Pão de Açúcar supermarkets and Jumbo hypermarkets brands), Dia (with its Minipreço discount stores), E. Leclerc, El Corte Inglés (with both ECI and Supercor outlets), ITMI (marketing Intermarché, Ecomarché, and discount Netto), Jerónimo Martins (the Pingo Doce brand, which also includes the Recheio wholesaler), Sonae Distribuição (operating Continente hypermarkets and supermarkets), and Schwarz (marketed under the Lidl discount brand). A recent study (see Table 1) provides an overview of the most important retail organizations in Portugal.

Table 1. Number of Hypermarkets and Supermarkets of Major Retail Organizations in Portugal

Organization	Number of Stores
Jerónimo Martins	486
Sonae (Continente)	369
Lidl	277
Intermarché	264
Minipreço (Dia)	620
Mercadona	49

Source: Adapted from Nielsen (2023).

A Deloitte (2017) study noted that in 2015, Portugal ranked among the world's 250 largest retailers, with Jerónimo Martins SGPS SA ranked 64th and Sonae SGPS SA 175th. Nielsen's (2016) research further reveals that in 2015, 86% of survey respondents identified Jerónimo Martins, and 85% identified Sonae as their primary shopping venues—a trend that persisted into 2016 (Nielsen, 2017).

Although retail's primary function has traditionally been to deliver goods from producers to consumers (Cachinho, 2002), the sector has undergone significant changes and economic restructuring in recent years.

Until the 1970s, traditional retail was characterized by a fragmented market dominated by small, specialized entities such as grocery stores, bakeries, pastry shops, butcher shops, fishmongers, drugstores, and small appliance shops (AdC, 2010). However, the emergence of larger retail units transformed traditional commerce, as these larger entities offered a comprehensive range of everyday consumer products at lower prices (AdC, 2010).

This evolution accelerated notably following the opening of Portugal's first hypermarket by Grupo Sonae in 1985, which occurred approximately twenty years after Carrefour inaugurated its first hypermarket in France. Since then, the activities of large retail groups in Portugal have grown substantially (Rodrigues, 2006).

Table 2 presents the evolution of key indicators—namely, the number of establishments, employees, and turnover—in the food retail sector (or retail with a predominant food component) within the Relevant Dimension Commercial Units (Unidades Comerciais de Dimensão Relevante – UCDR). These units are defined as establishments primarily engaged in retail (or automobile trade) that exhibit specific distinguishing characteristics (INE, 2017).

Table 2. UCDR, Key Results and Indicators for Food or Predominantly Food Retail Trade (2008–2012)

Year	No. of Establishments	No. of Employees	Turnover (€)
2007	1,413	62,842	9,625,034
2010	1,547	69,652	10,578,742
2013	1,638	68,258	11,052,178
2016	1,716	76,165	12,123,523
2019	1747	83,228	16,100,000

Source: Adapted from INE (2008–2022).

As shown in Table 2, despite some fluctuations, the number of establishments in the food retail sector increased by 426 UCDRs (approximately 33%) between 2006 and 2016. The number of employees grew by roughly 39%, resulting in an estimated 21,218 new jobs over the period, while turnover increased by about 36%, reaching approximately €12.123 billion in 2016.

A study from INE (2018) corroborates these trends; in November 2017, turnover in the retail trade of food products, beverages, and tobacco increased by 7.1% compared to the corresponding period in the previous year, underscoring the significant economic role of the retail sector in Portugal.

4. Methodology

The methodological framework for this research is designed to align with the project's primary objectives and research questions. Grounded in the principles of Behavioral Economics—which integrates insights from psychology with economic theory to more realistically model individual decision-making—this study examines consumer behavior and preferences within the Portuguese food retail sector. Specifically, it investigates the extent to which consumers' decision-making processes are influenced by the presence and perceived effectiveness of flyers. This chapter outlines the various stages of the empirical analysis, beginning with data collection and sample selection, followed by a discussion of the statistical methods and research model employed.

4.1. Data Collection and Sample Selection

Kinnear and Taylor (1991) note that questionnaires are highly effective for conclusive research because they enable the collection of valid, relevant, and structured information essential for decision-making. In this study, a structured questionnaire was used to obtain insights into the effectiveness of flyers in the Portuguese retail sector. The questionnaire was administered online via Google Docs, yielding a total of 164 responses.

The questionnaire comprised 28 questions organized into five distinct groups, informed by the literature review discussed in previous chapters:

Introductory Section: This section introduced the study's scope and primary objectives while assuring respondents of data confidentiality. A screening question ensured that only individuals who regularly visit supermarkets or hypermarkets—and who either participate in or influence purchasing decisions—continued with the survey. Out of 164 respondents, 158 met this criterion.

Sample Characterization: Questions in this group collected sociodemographic information, including gender, age, marital status, municipality of residence, household size, professional status, educational qualifications, and net monthly household income - measured on an ordinal scale.

Shopping Habits: Based on the theoretical framework established in the literature review, this section gathered data on respondents' shopping habits. Items related to shopping habits, including preferred shopping venues, diversification of locations, proximity of shopping venues to the respondent's residence, frequency of visits, use of shopping lists, and whether respondents shop alone or are accompanied (Rishi e Singh, 2012, Applebaum, 1951 and Kahn e Schmittlein 1989).

Impulse Buying: This section sought to understand the dynamics of impulse purchases. Items, which include the influence of flyer advertisements on unplanned purchases, the frequency of such purchases, and the identification of product categories most affected by impulse buying (Kaneman, 2012, Rousseau 1997, Applebaum, 1951, Berman and Evens, 1998, and Kollat and Willett, 1967).

Flyer Advertising: The final group focused on the use and perceived effectiveness of flyer advertising in supermarkets and hypermarkets (Prabakaran, 2012, Łodziana-Grabowska, 2016, Huml et al., 2015, Rousseau, 1997, and Lung, 2005).

4.2. Statistical Methods and Econometric Model

The statistical analysis begins with a comprehensive examination of the sample's socioeconomic and sociodemographic profile, using frequency tables (both absolute and percentage) via SPSS software to facilitate complete sample characterization. A descriptive analysis is subsequently performed on the three principal groups - shopping habits, impulse buying, and flyer advertising - to assess consumer behaviors and perceptions.

Given the study's behavioral perspective, the dependent variable of interest, which captures the frequency of purchasing a product solely because it was seen in a flyer, is ordinal. It is measured on a five-point scale: 1 = Never; 2 = Rarely; 3 = Sometimes; 4 = Frequently; and 5 = Always.

Attitudes and opinions are often measured on ordinal scales in social sciences (Anderson, 2003), and the Ordered Probit Model is thus employed to accommodate this nature of data. Unlike the standard Probit model—limited to binary outcomes—the Ordered Probit Model respects the inherent ordering of the data and allows for the inclusion of various explanatory variables (e.g., gender, education) to analyze their influence on consumer behavior.

Ordinal regression predicts an ordinal outcome where the relative order of categories is significant. The probability of a particular outcome is modeled in terms of cumulative probabilities (Maroco, 2007). Following the approach originally proposed by Aitchison and Silvey (1957) and later refined by McKelvey and Zavoina (1975), the model is defined as follows:

Let yi∗ be a latent variable representing the unobserved propensity, expressed as:

$y_{i}^{*} = xi\beta + \varepsilon i$

where:

y^{*} is the latent dependent variable;

xi is the vector of explanatory variables;

β is the vector of parameters to be estimated;

εi is the random error term.

The latent variable is partitioned into J ordered categories with the following scheme (Jackman, 2000):

$y_i = j \quad \Leftrightarrow \mu_{j-1} \leq y^{*} < \mu_j$, to $j=0, \ldots, m$

Here, μ_1 to μ_{J-1} (cut points or thresholds) are unknown parameters estimated jointly with β. The observed response y_i is linked to y_{i}^{*} via:

$$y_i = \begin{cases} 0 & \text{if} \quad \mu_0 = -\infty \le y_i^* < \mu_1 \\ 1 & \text{if} \quad \mu_1 \le y_i^* < \mu_2 \\ J-1 & \text{if} \quad \mu \quad < y^* \le \mu \end{cases}$$

The probability of observing a particular outcome is modeled as:

$P[y_i = j] = \Phi(\mu_j - x_i\beta) - \Phi(\mu_{j-1} - x_i\beta)$

$P[y_i = m] = \Phi(\mu_m - x_i\beta) - \Phi(\mu_{m-1} - x_i\beta) = 1 - \Phi(\mu_{m-1} - x_i\beta)$

where Φ denotes the standard normal cumulative distribution function.

The predicted outcome for each observation is the category with the highest estimated probability. Marginal effects, computed as the partial change in the probability for each category due to a change in an explanatory variable, are expressed as percentages. Given that the error terms in the Ordered Probit Model do not have constant variance and are not normally distributed, maximum likelihood estimation (MLE) is used instead of ordinary least squares (OLS) (Powers and Xie, 2008; Agresti, 2013; Maroco, 2007). The log-likelihood function is given by:

$$\ln L = \sum_{i=1}^{N} \sum_{j=1}^{m} Z_{ij} \ln[\Phi_{ij} - \Phi_{i,j-1}].$$

The Ordered Probit Model is an appropriate econometric tool for analyzing ordinal outcomes, allowing the study to capture the nuanced relationship between various predictors and the likelihood that consumers will purchase a product solely due to its appearance in a flyer.

5. Methodology

This chapter presents the analysis and discussion of the study's findings, organized into two principal sections. First, the sample is characterized through statistical analysis of its socioeconomic, sociodemographic, and behavioral profiles—specifically, regarding shopping habits, impulse buying, and flyer advertising. Second, the outcomes obtained from the application of the econometric model are evaluated.

5.1. Sample Characterization

5.1.1. Socioeconomic and Sociodemographic Profile

Out of the 164 responses obtained via the questionnaire, six were excluded because those respondents indicated that they do not regularly visit supermarkets or hypermarkets and do not participate in purchasing decisions. Consequently, the final sample comprises 158 individuals. The following sections detail the key socioeconomic and sociodemographic characteristics of this sample.

As shown in Table 3, the sample consists of 107 female respondents (67.70%) and 51 male respondents (32.30%), indicating a predominantly female composition.

Table 3. Distribution of the Sample by Gender

Gender	Number of Respondents	Percentage
Female	107	67.70%
Male	51	32.30%
Total	**158**	**100.00%**

Table 4 indicates that the majority of respondents are between 25 and 34 years old (31.60%), followed by those aged 45–54 years (22.80%) and 35–44 years (19.00%). Respondents aged 18–24 and 55–65 years account for 12.70% and 12.00% of the sample, respectively, while those over 65 years represent only 1.90%.

Table 4. Distribution of the Sample by Age Group

Age Group	Number of Respondents	Percentage
18 to 24 years	20	12.70%
25 to 34 years	50	31.60%
35 to 44 years	30	19.00%
45 to 54 years	36	22.80%
55 to 65 years	19	12.00%
Over 65 years	3	1.90%
Total	**158**	**100.00%**

Table 5 shows that respondents with a high school diploma (up to the 12th grade) and those holding a bachelor's degree constitute the largest groups, representing 37.34% and 35.44% of the sample, respectively. Respondents with postgraduate qualifications or doctorates are minimally represented.

Table 5. Distribution of the Sample by Educational Attainment

Educational Level	Number of Respondents	Percentage
Up to 9th Grade	18	11.39%
Up to 12th Grade	59	37.34%
Bachelor's Degree	56	35.44%
Postgraduate	1	0.63%
Master's Degree	21	13.29%
Doctorate	3	1.90%
Total	**158**	**100.00%**

Table 6 indicates that 50% of respondents are married or in a common-law union, 37.30% are single, 11.40% are divorced, and only 1.3% are widowed.

Table 6. Distribution of the Sample by Marital Status

Marital Status	Number of Respondents	Percentage
Single	59	37.30%
Married/Common-law Union	79	50.00%
Divorced	18	11.40%
Widowed	2	1.30%
Total	**158**	**100.00%**

Table 7 shows that 52.53% of respondents live in households with fewer than three members, 41.14% in households of three to four persons, and 6.33% in households with more than four members.

Table 7. Household Size of the Sample

Household Size	Number of Respondents	Percentage
Fewer than 3 persons	83	52.53%
3 to 4 persons	65	41.14%
More than 4 persons	10	6.33%
Total	**158**	**100.00%**

As shown in Table 8, the majority of respondents (70.89%) are employed by others. Self-employed individuals, students, unemployed, and retired persons represent 14.56%, 5.70%, 5.70%, and 3.16% of the sample, respectively.

Table 8. Distribution of the Sample by Employment Status

Employment Status	Number of Respondents	Percentage
Student	9	5.70%
Employed	112	70.89%
Self-employed	23	14.56%
Unemployed	9	5.70%
Retired	5	3.16%
Total	**158**	**100.00%**

Table 9 reveals that the largest proportions of respondents fall into the income brackets of €600–€1,199 (26.6%) and €1,200–€1,799 (29.7%), while those earning €2,400–€2,999 and more than €3,000 constitute 5.7% and 7.0%, respectively.

Table 9. Household Monthly Net Income of the Sample

Monthly Net Income	Number of Respondents	Percentage
€0 to €599	19	12.00%
€600 to €1,199	42	26.60%
€1,200 to €1,799	47	29.70%
€1,800 to €2,399	30	19.00%
€2,400 to €2,999	9	5.70%
More than €3,000	11	7.00%
Total	**158**	**100.00%**

5.1.2. Behavioral Characterization

This section examines the behavioral characteristics of the sample across three dimensions: shopping habits, impulse buying, and flyer advertising.

a) Shopping Habits

Preferred Supermarket/Hypermarket Chains: respondents were allowed to choose up to three preferred chains. Notably, Pingo Doce was cited by 75.9% of respondents (120 out of 158), followed by Continente (68.4%), while only 2 respondents mentioned E-Leclerc. These findings corroborate studies by Deloitte (2017) and Nielsen (2016; 2017) that identify Jerónimo Martins SGPS SA and Sonae SGPS SA as leading retail groups in Portugal.

Choice of Shopping Location (Loyalty vs. Proximity): compares factors influencing the choice of shopping venue. While 52.5% of respondents indicated that they do not consistently shop at the same establishment—suggesting that loyalty is not a major determinant—87.3% prefer shopping within their municipality, emphasizing the importance of proximity.

Frequency of Shopping Trips: the majority of respondents (51.90%) visit a supermarket or hypermarket five or more times per month, while only 9.50% report shopping one to two times monthly.

Usage of a Shopping List and Loyalty to It: 34.2% of respondents “sometimes” and 27.2% “frequently” use a shopping list, with the “never” category being the least frequent. Among those who do use a shopping list, 55.56% report being loyal to it.

Method of Shopping (Alone vs. Accompanied): an even split, with 50% of respondents shopping alone and the other 50% shopping accompanied.

b) Impulse Buying

Attraction by Flyer Advertising: reveals that 32.9% of respondents indicated that products advertised in flyers make them more attractive, prompting unplanned purchases “sometimes,” while 22.8% reported this occurs “frequently.”

Unplanned Purchases: In terms of unplanned purchases, 31% of respondents indicated that they "sometimes" make such purchases, and 25.9% do so "frequently." For non-essential products, 38% report "rarely" buying such items, with only 1.3% indicating that they "always" make unplanned purchases.

Product Categories: When asked which product categories are most affected by unplanned purchases, 87.8% identified food products, and 55.4% noted personal hygiene items. Baby/child and pet product categories were mentioned by 10.8% and 8.1% of respondents, respectively.

Self-Assessment of Impulse Buying: Overall, 41.1% of respondents believe they rarely engage in impulse buying, suggesting that most do not consider themselves impulsive buyers.

c) Flyer Advertising

Preferred and Most Trusted Media for Promotional Information: flyer advertising is the preferred medium for receiving promotional information, with 82.3% of respondents selecting flyers.

Perception of Advertisement Credibility: Table 21 shows that 36.71% of respondents disagree with the statement that product information in flyers is mostly misleading, indicating a relatively high level of trust in flyer advertising. Moreover, 35.4% of respondents sometimes purchase a product solely based on flyer exposure, while only 3.2% claim this occurs always. Among those who do purchase based on flyers, 94.90% attribute their decision to promotional pricing. In addition, when asked about switching from a product they intended to buy to another advertised product, the highest percentage (27.22%) reported that they never switch, with only 3.16% indicating that they always do so.

Overall Perception of Advertising Influence: Table 10 demonstrates that a significant majority (78.48%) agree that advertising affects consumer purchases in Portugal, while only 1.27% disagree.

Table 10. Flyer Advertising: Consumers' Perception of Advertising Influence

Question	**Number of Respondents**	**Percentage**
Do you consider that consumer purchases in Portugal are affected by advertising?		
Disagree	2	1.27%
Neither Agree nor Disagree	32	20.25%
Agree	124	78.48%
Total	**158**	**100.00%**

5.2. Estimation Results

This section presents the estimation outcomes for the model, detailing the inclusion of variables, model fit statistics, and a discussion of the estimated parameters. Initially, all variables under study were incorporated into the model to evaluate their significance For the initial model, the null hypothesis (H_0) stated that none of the independent variables influence the dependent variable, whereas the alternative hypothesis (H_1) posited that at least one independent variable does exert influence. An examination of the model fit information (see Table 24) led to the rejection of H_0. Subsequently, independent variables demonstrating significant explanatory power were retained in the final model (see Table 11).

Table 11. Significant Variables Included in the Final Model

Variable	Description
Compras_Pingo_Doce	Chain frequented: Pingo Doce
Compras_Continente	Chain frequented: Continente
Compras_Minipreço_Dia	Chain frequented: Minipreço/Dia
Fidelidade_estabelecimento_compra	Loyalty to shopping establishment
Forma_Compra	Shopping method (alone vs. accompanied)
Compra_Impulso_catAlimentar	Tendency to purchase non-essential food products
Compra_Impulso_catAnimais	Tendency to purchase non-essential products in the animals category
Compra_Impulso_catBebe_Crianca	Tendency to purchase non-essential products in the baby/child category
Consult_Public_Revista_Jornal	Preferred medium: magazines/newspapers
Consult_Public_TV	Preferred medium: TV
Consult_Public_Radio	Preferred medium: radio
Consult_Public_Folhetos	Preferred medium: flyers
Consult_Public_Outdoors	Preferred medium: billboards/outdoors
Idade	Age of the respondent
Estado_Civil	Marital status
RegiãoNUTSII	NUTS II region of residence
Agregado_Familiar	Household size
Montante_mensal_líquido_agregado	Monthly net household income
Compras_por_mes	Number of shopping trips per month
Utilização_Lista_Compras	Frequency of using a shopping list
Situação_Profissional	Employment status

Re-examination of the model fit statistics for the final model again resulted in the rejection of H_0, confirming that at least one independent variable significantly affects the probability of the outcome categories of the dependent variable. Furthermore, both Pearson's chi-square and the deviance tests are not statistically significant.

Finally, Table 12 presents the estimated parameters from the Ordered Probit model. Given the five categories of the dependent variable, four cut points (thresholds) were estimated. These thresholds delineate the boundaries

between the ordinal categories, enabling classification of individuals based on the likelihood of purchasing a product solely due to flyer exposure.

Table 12. Estimation Results of the Model

Category	Variable	B	p-value	Exp(B)
Thresholds (Dependent Variable Cut Points)	[Compra_Public_Folheto=1]	20.80	0.020	1.08×10^{9}
	[Compra_Public_Folheto=2]	25.35	0.009	1.02×10^{11}
	[Compra_Public_Folheto=3]	30.57	0.004	1.89×10^{13}
	[Compra_Public_Folheto=4]	41.40	0.001	9.53×10^{17}
Supermarket Chain Effects	Compras_Pingo_Doce	–3.47	0.018	0.031
	Compras_Continente	5.13	0.001	168.12
	Compras_Minipreço_Dia	5.70	0.001	298.56
Shopping Behavior	Fidelidade_estabelecimento_compra (loyalty)	5.77	0.001	321.32
	Forma_Compra (accompanied vs. alone)	1.97	0.020	7.15
Impulse Buying (Product Categories)	Compra_Impulso_catAnimais	–6.97	0.002	0.001
	Compra_Impulso_catBebe_Crianca	–3.49	0.019	0.031
Promotional Media Preferences	Consult_Public_Revista_Jornal (magazines/newspapers)	7.21	0.001	1356.95
	Consult_Public_TV (TV)	2.61	0.009	13.57
	Consult_Public_Radio (radio)	6.73	0.001	839.36
	Consult_Public_Folhetos (flyers)	8.03	0.001	3085.08
	Consult_Public_Outdoors (billboards)	–4.99	0.007	0.007
Age Effects	Idade_18_a_24	15.50	0.000	5.39×10^{6}
	Idade_25_a_34	14.73	0.001	2.50×10^{6}
	Idade_35_a_44	9.64	0.004	1.54×10^{4}
	Idade_45_a_54	12.19	0.000	1.97×10^{5}

Category	Variable	B	p-value	Exp(B)
Marital Status	EstCivil_Solteiro (single)	12.31	0.019	222678.41
	EstCivil_Casado_União_Facto (married/common-law)	11.65	0.024	114243.65
Region (NUTS II)	RNUTSII_Alentejo	–10.70	0.006	2.27×10^{-5}
	RNUTSII_Lisboa	–9.82	0.010	5.45×10^{-5}
	RNUTSII_Centro	–8.49	0.014	2.06×10^{-4}
Household Size	Agreg_Familiar_menos3	10.18	0.000	26238.41
	Agreg_Familiar_3a4	3.78	0.010	43.72
Household Income	Montante_mensliq_agreg_600_1199	5.08	0.011	160.55
	Montante_mensliq_agreg_1200_1799	8.37	0.001	4305.77
	Montante_mensliq_agreg_1800_2399	8.22	0.001	3723.16
	Montante_mensliq_agreg_2400_2999	13.64	0.002	836516.02
Shopping Frequency	Compras_p_mes_1 (1 time/month)	–4.81	0.007	0.008
	Compras_p_mes_2 (2 times/month)	2.18	0.026	8.86
Shopping List Usage	[Utilização_Lista_Compras=1]	–12.92	0.001	0.0000024
	[Utilização_Lista_Compras=2]	–4.23	0.039	0.015
	[Utilização_Lista_Compras=4]	–0.20	0.023	0.820
Employment Status	Sit_Profissional_Estudante	–10.79	0.042	0.0000207
	Sit_Profissional_Empregado_conta_outrem	–11.82	0.026	0.0000073

The estimated parameters provide insight into the determinants of flyer advertising effectiveness in the Portuguese retail context.

Supermarket Chain Effects: Respondents who frequent Pingo Doce are more likely to “never” purchase a product solely based on flyer exposure. Conversely, those who shop at Continente and Minipreço/Dia have a higher probability of consistently purchasing products seen in flyers, with their probabilities in the “always” category increasing by factors of 168.118 and 298.561, respectively. Loyalty to a Shopping Establishment: Consumers who consistently shop at the same establishment exhibit a significantly higher likelihood—by a factor of 321.319—of always purchasing products solely due to flyer exposure.

Shopping Method: Individuals who shop accompanied are more inclined to always purchase products based on flyer exposure, with their probability in the “always” category being 7.150 times higher than those who shop alone. Impulse Buying in Specific Categories: For non-essential purchases in food, animals, and baby/child

categories, respondents show a lower probability of always purchasing based solely on flyer exposure and a higher likelihood of never doing so.

Preferred Promotional Media: Consumers who prefer magazines/newspapers, TV, radio, or flyers are more likely to always purchase a product based solely on flyer exposure, whereas those who prefer billboards tend to never make such purchases. Age Effects: Respondents aged 18–54, particularly the youngest group (18–34 years), are more likely to always purchase a product after seeing it in a flyer compared to those over 54.

Marital Status: Single and married/common-law respondents are considerably more likely—by factors of 222,678.41 and 114,243.65, respectively—to always purchase products based solely on flyer exposure compared to widowed respondents. Region of Residence: Respondents from the Alentejo, Lisbon, and Central regions exhibit a higher probability of never purchasing a product solely based on flyer exposure, with their probabilities in the "always" category being significantly lower compared to respondents from the North.

Household Size and Income: Individuals in households with up to four persons are more likely to consistently purchase based on flyer exposure. Additionally, higher monthly net household income, particularly for incomes below €3,000, is associated with an increased probability of always purchasing such products. Frequency of Shopping Trips: Respondents shopping only 1–2 times per month have a lower probability of always purchasing based on flyer exposure compared to those shopping more frequently, whereas those shopping 3–4 times per month are 8.862 times more likely to be in the "always" category than those shopping more than four times per month.

Usage of a Shopping List: Individuals who never or rarely use a shopping list are less likely to always purchase products solely because they saw them in a flyer compared to those who always use a list. Employment Status: Among employment categories (excluding self-employed and unemployed respondents, who were not significant), students and salaried employees have a markedly lower probability of always purchasing a product due to flyer exposure compared to retired respondents, with their probabilities being 0.0000207 and 0.0000073 times that of retired respondents, respectively.

These findings provide comprehensive insights into how various socioeconomic, behavioral, and shopping habit variables affect the likelihood of purchasing a product solely based on flyer exposure. The results underscore the significant determinants of flyer advertising effectiveness in the Portuguese retail sector.

6. Conclusion

This study examined the effectiveness of flyer advertising in Portugal's retail sector from a behavioral economics perspective. Specifically, it assessed the extent to which consumers purchase a product solely because it was advertised in a flyer and evaluated the trust consumers place in flyer advertising relative to other promotional channels. The study identified the key determinants that drive consumer responses to flyer advertising in large-scale retail environments by applying an Ordered Probit model.

The results indicate that retail chains such as Continente and Minipreço/Dia are associated with higher exposure to flyer advertising. This corresponds to a greater likelihood that consumers will purchase products based solely on flyer exposure. Moreover, the degree of loyalty to a shopping establishment emerged as a critical factor; consumers who consistently patronize the same store are significantly more likely to make flyer-induced purchases. This finding corroborates Applebaum's (1951) observation that a consumer's shopping location choice is a key criterion for understanding retail behavior.

The study also confirmed that social factors influence purchase behavior. Consistent with the findings of Rishi and Singh (2012) and Applebaum (1951), respondents who shop accompanied tend to exhibit higher probabilities of making impulse purchases based on flyer exposure. Although impulse buying is often regarded as a hallmark of retail (Rousseau, 1997; Kollat & Willett, 1967; West, 1951), the current analysis reveals that despite 87.80% of respondents identifying food as the category most prone to impulse purchases, this did not translate into the highest likelihood of consistently purchasing a product merely because it was advertised in a flyer.

In Portugal's retail sector, characterized by significant advertising investments, flyers remain the primary channel for conveying promotional information. Consistent with Łodziana-Grabowska (2016) and the ELMA report (as cited by Mediapost, n.d.), 82.30% of respondents indicated that flyers are their primary source of promotional information. Furthermore, the analysis revealed that respondents who prefer magazines/newspapers, television, radio, or flyers as their promotional media are more likely to consistently purchase a product based solely on flyer exposure, whereas those relying on billboards are less likely to do so.

Consumer characteristics—such as age, marital status, region of residence, household size, income, and professional status—also significantly influence the effectiveness of flyer advertising. Specifically, individuals

aged 18–34, those who are single or married/common-law, and those belonging to households with up to four members and higher monthly incomes are most likely to purchase a product because of flyer exposure consistently. In contrast, respondents residing in the Alentejo, Lisbon, and Central regions, as well as those who are students or salaried employees, exhibit a lower likelihood of such behavior.

Moreover, the findings align with perspectives advanced by Huml et al. (2015), Łodziana-Grabowska (2016), and Rousseau (1997), which emphasize that advertising not only informs consumers of available offers and stimulates short-term sales but also reinforces brand positioning and enhances customer loyalty over time. The study further demonstrated that less frequent shoppers are less likely to purchase a product solely due to flyer exposure compared with more frequent shoppers.

In summary, the study shows that flyer advertising exerts a notable influence on consumers' purchase decisions in Portugal's retail sector. A majority of respondents (78.48%) agreed that advertising affects consumer purchases, and most did not perceive flyer information as misleading. The analysis delineated the key endogenous factors (e.g., loyalty to the shopping establishment, age, marital status, region, household size, income, professional status) and exogenous factors (e.g., preferred retail chain, shopping accompaniment, impulse buying behavior, preferred promotional media, shopping frequency, and the habit of using a shopping list) that most influence consumers' responses to flyer advertising in large-scale retail formats.

The primary limitation of this study is its sample, which, due to its small size (158 respondents) and limited stratification, restricts the generalizability of the findings to the broader Portuguese population. Future research should aim to secure a larger and more representative sample—potentially through alternative data collection methods, such as in-person surveys—to enhance the robustness and external validity of the conclusions.

A principal recommendation for future research is to evaluate the effectiveness of flyer advertising using alternative data sources. For example, researchers could construct a database from purchase receipts provided by major food retail companies in Portugal. Such a database would allow for a detailed comparison of consumer spending across product categories with the frequency and number of flyer promotions for each category, thereby yielding richer insights into the dynamics of flyer advertising effectiveness.

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