

Junk or Jewel: Content, Users and Sales Effectiveness of Supermarket Catalogues

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ABSTRACT

Supermarkets and product manufacturers invest a significant amount of money in advertising promotions to inform and attract customers in an effort to stimulate purchases. Print catalogues remain a relevant and important promotional tool despite media development towards digital platforms. In 2022, almost 11% of Australia's advertising industry's revenue was attributed to print advertising campaigns, equating to over AU\$339 million (IBISWorld, 2022). Despite this large amount and a seeming proliferation of big data, most of the decisions made by retail marketing managers remain based on intuitions and untested assumptions, rather than empirical evidence (Bogomolova et al., 2017). This highlights the ongoing need to gather more rigorous research evidence to facilitate better-informed managerial decisions and, ultimately, a better return on marketing investments for retailers and product manufacturers.

This thesis aims to advance marketing knowledge on supermarket catalogues. Catalogue advertising is one of the oldest forms of marketing, compared to other mass media channels (i.e., magazines, radio, newspapers, free-to-air television), and is a highly effective sales driver (Real Media Collective, 2022). Catalogues comprise one of the main sources of information for consumers when searching for promotions (Inside FMCG, 2021). Fifty-five per cent of Australians who read a printed catalogue in the last seven days made a purchase afterwards (Real Media Collective (2019a). This thesis includes three studies, each addressing a different question regarding supermarket catalogue production and consumption:

1. Who uses supermarket catalogues?
2. What are the typical contents of supermarket catalogues?
3. What is the sales effectiveness of supermarket catalogues?

Each study is written as a stand-alone academic journal article. The first was published in the *Journal of Retailing and Consumer Services*, the second in the *International Journal of Advertising*, and the third is under review in the *International Journal of Advertising*. I am the lead author of all three articles.

In the **first study**, a representative sample of the South Australian adult population was surveyed to investigate catalogue users' typical psychographic and behavioural characteristics. A novel aspect of this study was the inclusion of health consciousness as a psychographic factor that might explain consumers' likelihood of using supermarket catalogues. A binomial logistic regression was conducted to better understand the drivers that would lead to higher catalogue usage. Our findings demonstrate that consumers with one or more of certain characteristics – price-conscious, deal-prone, low-income background, and lower probability of brand switching – are more likely to be catalogue users. This study informs retail practitioners about the readership audience of

catalogues. For example, there is no statistically significant effect of demographics (i.e., age or gender) on catalogue usage. This contradicts the industry-held belief that certain demographic segments (e.g., the elderly and/or females) are typical users of catalogues. Catalogue promotion is likely to be relevant to everyone in terms of demographics.

The overarching objective of the **second study** was to understand current practices in supermarket catalogues, to identify key trends in content, composition, format, and layout, and to compare results across five countries: Australia, Malaysia, New Zealand, South Africa, and the United States. A content analysis method was conducted, based on the main design elements in print advertising, to provide an international comparison of 39 catalogues from 13 supermarket chains in five countries. This study was one of the first to examine catalogues from a visual media perspective, rather than solely as a tool for price promotion, as is common in previous catalogue studies (Pieters et al., 2007; Pentus et al., 2018). Based on extensive content analysis, the findings showed that the function of catalogues has evolved beyond merely communicating price discounts. Nowadays, catalogues feature recipes, servings suggestions, and meal ideas. This study indicates that catalogues have the potential to be entertaining, informative, and useful; for example, by encouraging and educating consumers about how to cook at home or choose relevant products, not just merely a tool to community price discounts.

The **third study** investigated the sales effectiveness of catalogues, specifically how product position in a catalogue layout could affect sales of promoted products. A natural experiment was conducted by obtaining transaction sales data from 74 stores from a large supermarket chain in Australia and measuring the sales outcomes for products located at different locations and discounts in a catalogue. A strength of this study was the access to and utilisation of the retail buyer's promotional planner (i.e., accurate retrospective information about which products were advertised when and in what positions in catalogues, and at what discounts), which strengthened the design of the natural experiment, provided context to the results, and enabled the analysis of sales transaction data in greater detail. Results show that for the main effects, only discount depth and catalogue location have a statistically significant impact on sales quantity. Discount depth, rather than catalogue location, has a much greater relative impact on retail sales. There was a statistically significant three-way interaction between discount, catalogue location, and product category classification. This, again, challenged common industry assumptions and associated practices – for example charging product manufacturers higher fee for certain catalogue positions.

Although supermarket catalogue promotion has been around for decades, calls for research and improvement in this area are ongoing (Ieva et al., 2022; Woo et al., 2022), and this thesis addresses this issue. Given the substantial amount of investment and resources spent on catalogue promotions, this thesis provides evidence-informed guidance on how to improve the efficiency of marketing and promotion decisions. Interestingly, results from this thesis have

debunked several common industry beliefs. Firstly, results suggest that catalogue promotion is relevant to all demographics, which meant that catalogue promotions would not be an effective strategy in targeting and segmenting consumers. Secondly, the effect of discount is much greater in increasing the sales quantity, as compared to the effect of catalogue location and product classification. Thirdly, not all catalogue items offer monetary savings. Hence, the thesis concludes that catalogues have evolved away from their original purpose as solely a price discount tool and moved towards becoming an advertising medium.

A PhD scholar,
five academics from three universities, and
an industry expert walk into a ~~bar~~ meeting room.

This is what happened next...

DECLARATION

I certify that this thesis:

1. does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any university
2. and the research within will not be submitted for any other future degree or diploma without the permission of Flinders University; and
3. to the best of my knowledge and belief, does not contain any material previously published or written by another person except where due reference is made in the text.

I am a recipient of an Australian Government Research Training Program Scholarship.

Signed:

Date: 5 / 04 / 2023

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I would like to extend my sincere thanks to Chris for his exceptional guidance and invaluable support throughout my study and work with the retailer. Your deep understanding of the retail industry, as well as your willingness to share your knowledge and experience, has been instrumental in my professional development. I would like to express my sincere gratitude to the Foodland group that provided valuable data for my research. Their willingness to share their data allowed me to complete my research, and I am thankful for their generosity. While working full-time at the company, I had access to the management team's insights and wisdom that was crucial to the success of my study, and I am deeply grateful for their support.

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Thank you

谢谢

Terima Kasih

Grazie

Спасибо

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Publications from the Thesis

This thesis is a collection of published or under-review, peer-reviewed manuscripts. As a result, the text and figures in each chapter are formatted differently, according to the specific requirements of each journal.

The following publications provide the backbone of this thesis:

Chapter 2:

Tan, P. J., Tanusondjaja, A., Corsi, A., Lockshin, L., Villani, C., & Bogomolova, S. (2021). Behavioural and psychographic characteristics of supermarket catalogue users. *Journal of Retailing and Consumer Services*, 60, 102469.

Chapter 3:

Tan, P. J., Tanusondjaja, A., Corsi, A., Lockshin, L., Villani, C., & Bogomolova, S. (2022). Audit and benchmarking of supermarket catalogue composition in five countries. *International Journal of Advertising*, 42(3), 589-616.

Chapter 4:

Tan, P. J., Tanusondjaja, A., Corsi, A., Lockshin, L., Villani, C., Simmonds, L., & Bogomolova, S. (under review). Sales effectiveness of supermarket catalogue placements. *International Journal of Advertising*.

CHAPTER 1: INTRODUCTION

Chapter 1 introduces the thesis. It begins by providing background to the literature and the research topic to be addressed. It then outlines each of the three studies, their hypotheses or research questions, methods, and key findings.

Research Background

The advertising industry traditionally promote campaigns through two channels: broadcasting and print media (IBISWorld, 2022). Although the world has now entered a digital era, print media remains a relevant and important promotion tool. In 2021-22, with over AU\$3.2 billion in revenue generated by the advertising industry, approximately 10.6% (equal to over AU\$339 million) was attributed to print advertising campaigns (IBISWorld, 2022). In Australia, the main markets for the advertising industry are retailers (28%), finance and banking (12%), property and construction (10%), and manufacturing (8%). Advertising industry revenue is projected to increase by 3.1% over the next five years, despite the negative effects of the COVID-19 pandemic, as retailers attempt to regain and reach more customers (IBISWorld, 2022).

Supermarket catalogues – also known as store leaflets, circulars, or brochures – are one of the most important and prevalent marketing tools used by retail managers to promote price discounts, product range offerings, and store events (Blattberg & Neslin, 1990; Pieters et al., 2007; Zhang et al., 2009). Despite two decades of online and social media marketing, along with the digitisation of consumer experiences, print catalogues are still widely used. In Australia, compared to the previous financial year 2021, retailers have added more pages to their catalogues (+18%) (Real Media Collective, 2022). Catalogues have the highest readership compared to other media channels (Real Media Collective, 2022), reaching over 20.3 million Australians weekly, over 77% of the population. Moreover, consumers consider print catalogues the second most useful tool (after supermarket subscription emails) for supermarket promotions (FMCG, 2021).

The Need for Evidence-Based Marketing Decisions

Based on a commercial-in-confidence conversation with retail buyers of a supermarket chain in Australia, retail buyers (i.e., managers employed by retailers to arrange promotion deals with product manufacturers who pay to feature their products in catalogues) spend up to 80% of their time negotiating and planning catalogue promotions. However, most decisions are not supported with evidence or data. This is in line with a past study showing that the majority of the marketing and promotional decisions in the retail industry are based on intuitions and untested assumptions, rather than empirical evidence (Bogomolova et al., 2017). Hence, there is a significant need for more rigorous research into supermarket catalogues to empower managers to make better-informed and evidence-driven decisions.

Supermarkets and manufacturers often work together when negotiating trade promotions (also known as promotional planning or promotional programming), as these are promotional activities that both supermarkets and manufacturers typically fund. These promotional activities are essential to manufacturers as promotions drive almost 80% of the manufacturer's sales volume, which in

turn accounts for up to 20% of the manufacturer's revenue (Michalewicz et al., 2021). With so much time and money spent on catalogues, it is important to ensure the efficiency and effectiveness of the promotions. The importance of evidence-based decision-making, and the ensuing consequences of not having robust data support, can clearly be seen in the case study below.

In September 2020, a major Australian supermarket chain stopped their print catalogue letterbox distribution, citing reasons such as changes in customer preference and environmental sustainability (Coles, 2020). Following this announcement, 14 weeks of field research were conducted to review the catalogue channel's effectiveness (Real Media Collective, 2022). Results showed that after the removal of catalogue distribution, retail stores in affluent suburbs suffered a double-digit decline in sales, while stores in metropolitan suburbs had a single-digit decline or no change in sales. Even though the supermarket chain invested heavily in its digital presence, they gained only one percentage point in market share. In comparison, one competitor maintained its catalogue distribution and saw an increase in market share of 4.4 points across the same period, equivalent to AU\$5.5 billion in sales growth. Discontinuing the brand's print catalogue could have led to a decline in the brand's mental availability (Romaniuk & Sharp, 2016), as the brand is less likely to be refreshed and recalled in the consumer's mind before (at planning) and during purchase situations. Given that the catalogue industry is valued at AU\$125 billion, it is clear that careless decisions have the potential to backfire spectacularly and to have dire long-term consequences.

The above case study alludes to the importance of evidence-based decision-making combined with strong underpinning theory and conceptual framework. Concepts and theories related to the role of catalogues in consumer purchases and retail business growth – such as consumer gaze theory and mental and physical availability – are discussed below.

Consumer Gaze Theory

The case study above highlights that when a retailer stopped distributing its catalogue, this reduced the number of communication channels to consumers, as well as the retailer's ability to capture the consumer's attention. As consumers read catalogues, they are processing the information displayed before them. Where they *look* is where they are *focusing* their attention. It should be noted that although this thesis does not actually measure the respondent's gaze, consumer gaze theory helps to understand how consumers process catalogue information.

A review of eye-tracking research (Wedel & Pieters, 2015) revealed that, when presented with a scene, the consumer's eyes can be drawn to focus on an object based on the object's perceptual features, such as a featured item on a page filled with products in a catalogue. A better

understanding of which perceptual features – colour, edges, shape, and size – can capture and hold the consumer’s attention could lead to a more effective ad. Studies have shown that several elements of an ad can attract and hold a consumer’s attention, such as the complexity of the visual environment, the spatial arrangement of elements, and the size of the object or area of interest (see Orquin et al., 2018; Rayner 2009; Wedel & Pieters 2015).

Two kinds of information processing are involved in eye movements: bottom-up and top-down (Orquin & Loose 2013). The bottom-up process takes place when the consumer’s attention is *involuntarily* drawn to a visual element. For example, a consumer may be attracted to an image of pasta sauce on the catalogue page and think, “Oh look, there is a discount on pasta sauce this week”. On the other hand, the top-down process is an *intentional* behaviour, where the consumer is seeking specific information and has a goal in mind. For example, a consumer may be on the lookout of their favourite pasta sauce brand and surmise, “I want to know whether my pasta sauce is on special this week and at what price”. Therefore, both of these eye movement processes can occur when a consumer reads a catalogue.

Hence, managers must make careful decisions regarding a catalogue’s various design and layout elements. However, through personal conversations with retail buyers of a large Australian supermarket chain, I discovered that the catalogue design outcome is more likely to be influenced by untested assumptions, rather than evidence-informed framework. This could be costly for the retailer, as the layout of the products in the catalogue influences consumers’ gaze and attention, which could increase (or deter) their likelihood to purchase. When an ad is able to attract a consumer’s attention, the consumer is reminded of that brand, thus increasing the likelihood of the brand being recalled during a purchase situation.

Mental and Physical Availability

As seen in the case study of the major Australian supermarket that stopped distributing catalogues, it is clear that catalogue advertising is an effective tool in refreshing and building brand-linked memory structures in the consumer’s mind. Without catalogue distribution, consumers would no longer notice the retailer brand, thus diminishing the brand’s mental availability. *Mental availability* is defined as the propensity of a brand to be noticed or recalled when a person is in a buying or consumption situation (Romaniuk & Sharp, 2004; Romaniuk & Sharp, 2016). This concept incorporates that of *brand salience*, which measures how well a person is able to recognise, notice, or recall a brand (Ehrenberg et al., 2002). The memory elements of mental availability are built on *associative network theories*, which state that the human memory is a network of nodes made up of associated links (Anderson & Bower, 1973). When encountering a brand, a memory is encoded and stored in the person’s mind, which can then be retrieved during a purchase situation. When a person comes across a brand in an advertisement, an association is formed between the brand

and the context of that ad. For example, when a person sees a Coca-Cola advertisement depicting a person drinking Coca-Cola on a hot summer day, an association between 'Coca-Cola' and 'thirst quencher' is formed in that person's memory. Thus, the next time the person is in a purchase situation for a thirst-quenching drink, he/she may be more likely to think of 'Coca-Cola'. In a similar context, when a person sees Cadbury being promoted at half price in a Kroger supermarket catalogue, he/she may be more likely to recall Cadbury when thinking about purchasing chocolate when shopping at a Kroger store. Therefore, the catalogue is an efficient advertising tool as it can increase both the manufacturer's and retailer's mental availability (i.e., reminding that this supermarket chain is located nearby), which could also increase the brand's sales.

However, just as important as mental availability is physical availability, as a product must be physically present in order to be noticed and purchased by consumers. *Physical availability* is defined as making the brand noticed and bought as easily as possible by as many consumers as possible and across as many channels as possible (Sharp, 2010). For example, Coca-Cola has made their product readily available to be purchased across various buying outlets: supermarkets, convenience stores, food courts, restaurants, and vending machines. The same concept applies to retail stores. When the product is displayed across multiple locations within the supermarket, this increases the likelihood of its being noticed and purchased by consumers. Furthermore, if the product is highlighted to the consumers using a display or shelf-talker that will grab their attention while they browse, this would also increase the brand's mental availability. However, if the products are not available or out-of-stock, this equates to lost sales for the manufacturer. Therefore, in order to maximise the efficiency of catalogue promotion, retailers must ensure that products are sufficiently well-stocked and presented (with point-of-sale signage) in-store. Similar to consumer gaze theory, although this thesis does not measure the mental or physical availability of the retailer or manufacturer, the mental availability and physical availability theories provide the necessary theoretical background to my research.

Thesis Aim and Objectives

This thesis extends advertising knowledge to a supermarket catalogue context in order to advance catalogue promotion research and practice. This thesis includes three studies, each addressing a different question related to supermarket catalogue production and consumption:

1. Who uses supermarket catalogues?
2. What are the typical contents of supermarket catalogues?
3. What is the sales effectiveness of supermarket catalogues?

The thesis is organised into five chapters. Chapter 1 is this introductory chapter and sets the scene for the key elements of catalogue promotions and the implications of improving its effectiveness. Chapters 2 to 4 present three discrete studies, each written as a stand-alone journal article. Each study includes its own introduction, literature review, methods, results, discussions, contributions, limitations, and future research (exactly as it was published in the respective journals). The research questions, methods, and results for each study are briefly discussed below in order to provide the reader with a roadmap to the rest of the thesis.

Study 1: Characteristics of catalogue users

Chapter 2 presents Study 1, which aims to determine the demographic, behavioural, and psychographic characteristics of catalogue users. The following hypotheses were tested (see

Figure 1):

H1. Price-conscious consumers are more likely to use catalogues than consumers who are not price-conscious.

H2. Consumers with perceived financial constraints are more likely to use catalogues than consumers with who do not have perceived financial constraints.

H3. Deal-prone consumers are more likely to use catalogues than consumers who are not prone to deals.

H4. Variety seeking consumers are more likely to use catalogues than consumers who rarely switch brands.

H5. More health-conscious consumers are less likely to use catalogues than consumers who are less health-conscious.

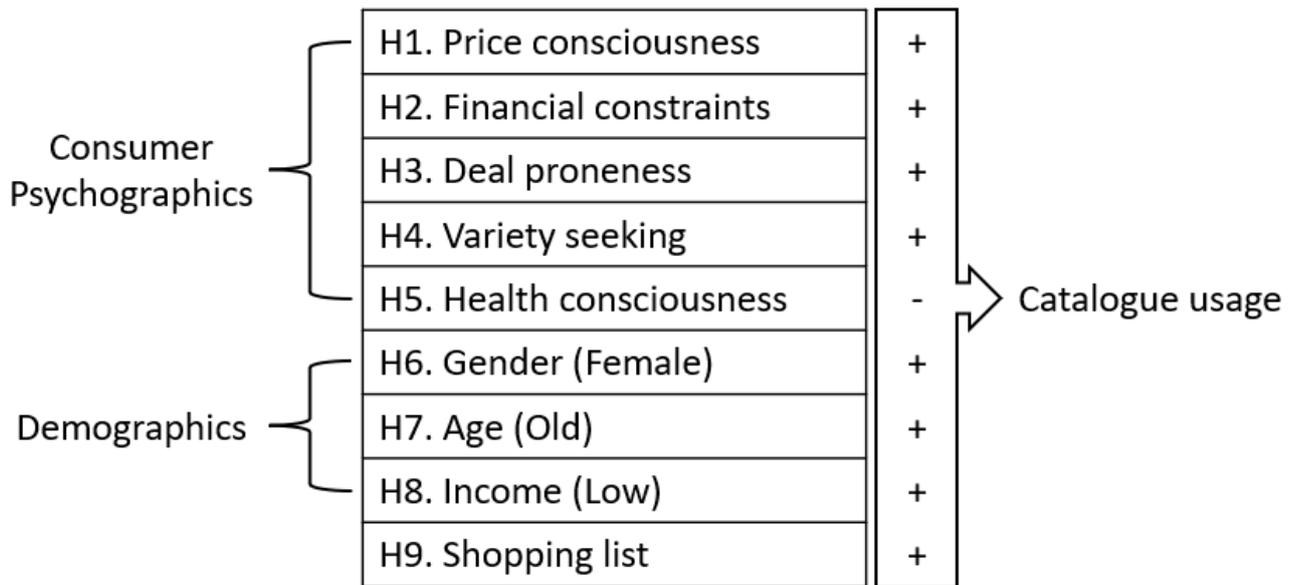
H6. Females are more likely to use catalogues than males.

H7. Older consumers are more likely to use catalogues than younger consumers.

H8. Consumers with lower incomes are more likely to use catalogues than higher-income consumers.

H9. Consumers with a shopping list are more likely to use catalogues than consumers without a shopping list.

Figure 1 *Conceptual Model and Hypotheses*



Data and method

A representative sample of the adult South Australian population was collected using a consumer panel provider. The self-reported survey contained their demographics, catalogue readership frequency, shopping list usage, and psychographic characteristics. The scale items were derived from past studies: price consciousness, variety seeking and financial constraints (Ailawadi et al., 2001); deal proneness (Lichtenstein et al., 1997), and health consciousness (Mai & Hoffmann, 2012). A binomial logistic regression was conducted to predict consumer catalogue usage, based on demographic and psychographic characteristics.

Key results and implications

- One out of four demographics, and three out of five psychographic factors showed a statistically significant effect on catalogue usage:
 - Consumers with lower incomes are more likely to use catalogues than the wealthiest group
 - Deal-prone consumers are more likely to use catalogues than consumers who are not prone to deals
 - Price-conscious consumers are more likely to use catalogues than consumers who are not price-conscious
 - Variety-seeking consumers are less likely to use catalogues than consumers who rarely switch brands
- Contrary to common industry beliefs, catalogue promotion is relevant to all demographics, not specific groups. Hence, targeting and segmenting consumers using catalogue promotions would not be an effective strategy.
- There is evident that print catalogue remain widely relevant and continue to be read by consumers. Seventy-six per cent of Australian grocery shoppers have read at least one

catalogue in the past four weeks, while 54% of consumers read every page of the catalogue. This

- Deals and monetary savings on items featured in catalogues should be clearly displayed in order to be relevant to the catalogue users.

Study 2: Benchmarking catalogue content

Chapter 3 describes Study 2, which aims to synthesise current practices in supermarket catalogues, identify key trends in content, composition, format, and layout, and compare results across countries. This is an exploratory study aiming to understand the various aspects of catalogues. Thus, rather than hypotheses, a series of research questions is proposed. Research questions 1a, 1b, 1c, and 1d examined the general characteristics of catalogues, and research question 1e investigated any differences among countries:

RQ1a: What is the average number of pages in a supermarket catalogue?

RQ1b: What is the average duration of a catalogue promotion?

RQ1c: What is the average number of items in the entire catalogue, and per page?

RQ1d: How common are different ad sizes in the catalogue?

RQ1e: What are the differences among countries?

Research questions 2a, 2b, 2c, and 2d examine the discount depth and prevalence of deal types:

RQ2a: How common are price discounts and different price promotion framing techniques in supermarket catalogues?

RQ2b: What is the average discount depth?

RQ2c: How do promotion framing, and discount depth differ across product category, ad size, and ad location in a catalogue?

RQ2d: How does promotion depth differ between the front and back pages?

RQ2e: How does promotion depth differ between private labels and national brands?

The last research question investigated the frequency of quality attribute claims in catalogues:

RQ3: What other information or claims are presented next to the promoted items?

Data and method

Catalogues from 13 supermarket chains across five countries were collected over an eight-week period. The country and its supermarket chains were as follows: Australia (Woolworths, Coles, Foodland), Malaysia (Giant, Tesco), New Zealand (Countdown, Four Square, New World), South Africa (Pick 'n' Pay, Shoprite), and the United States (Kroger, Meijer, Publix). A content analysis method was utilised to analyse supermarket catalogue content.

Key results and implications

- On average, a catalogue contains 22 pages, featuring 237 items, with a validity period of eight days.
- Most catalogue items are small-size format, dollars-off type, offer an average discount of 26%, and feature a product image or description.
- Some catalogue aspects resemble in-store promotions, such as the most prevalent promotion type (percentage-off), discount depth (26%), and least promoted product category (pet care).
- Items on front and back pages offer the same average discount depth of 31%.
- Contrary to industry belief,
 - Items on front and back pages offer the same average discount depth of 31%.
 - Discount depth is similar for national brand products and private labels (26% off and 25% off respectively).
 - Not all catalogue items offer monetary savings. 41% of catalogue items displayed no savings amount. This suggests that retailers and manufacturers are utilising catalogues as a brand-building tool, which is beyond the norm of a price-discount tool.

Study 3: Sales effectiveness of catalogue

Chapter 4 describes Study 3, which aims to extend our understanding of the sales effectiveness of supermarket catalogues by examining the sales uplift of the promoted product across different catalogue locations (cover page or inside) compared to in-store promotions only without any catalogue support. The exploratory nature of the research led to the following research questions:

RQ1: What is the impact of discount depth, catalogue location, and product classification on sales quantity, and is there an interaction effect?

RQ2: What is the sales uplift (in quantity sold) of a product promoted in a catalogue, and how does the sales uplift differ across catalogue locations?

RQ3: How does the sales uplift for catalogue-advertised products differ across hedonic vs. utilitarian product categories?

Data and method

A natural experiment was carried out using real-life sales data and catalogue promotion schedule from a major retail grocery chain in Australia. Consumer transaction sales data were obtained across 74 stores, containing 18,878 stock-keeping units (SKUs) and 11 product categories. An ANOVA was conducted to examine the association among discount depth, catalogue location, and product classification on the sales quantity.

Key results and implications

- There was a statistically significant interaction in discount and catalogue location. The relative impact of discount is much greater on sales quantity than catalogue location.
- Two-way interaction: discount and catalogue location, as well as discount and product classification, had a statistically significant effect on sales quantity.
- Three-way interaction between discount, catalogue location, and product classification was statistically significant, resulting in higher sales quantity.
- Cover page generated 399 units higher than inside major features, 479 units higher than inside minor features, and 840 units higher than in-store only promotions.
- Although catalogues are one of the oldest marketing tools, they are still useful in generating a sales uplift. This is in line with studies showing that catalogue promotions can increase short-term sales (Dunn, 2018; Gázquez-Abad & Martínez-López, 2016; Narasimhan et al., 1996).
- Contrary to industry beliefs, results suggest that catalogue location and product classification does not matter as much, because discount depth has the greatest effect in increasing sales level.

This thesis concludes with Chapter 5, which brings together the overall contributions of the three studies. Results from these studies contribute to the advancement of knowledge across the retail and advertising fields, and also have important implications for industry practitioners. Chapter 5 concludes with the overall limitations of the thesis and directions for future research.

CHAPTER 2: STUDY 1

Chapter 2 presents the first study of this thesis. This study was published in the *Journal of Retailing and Consumer Services* (JRCS), an international and interdisciplinary forum for research and debate in the rapidly developing – and converging – fields of retailing and services studies. It focuses particularly on consumer behaviour and on policy and managerial decisions, encouraging contributions from academics across a wide range of relevant disciplines. The journal is ranked A under the 2022 Australian Business Deans Council (ABDC) and has a CiteScore of 11.4 and a five-year Impact Factor of 10.74. It is ranked #2 in Marketing under Google Scholar Metrics, with a h5-index of 110.



Behavioural and psychographic characteristics of supermarket catalogue users

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ABSTRACT

Supermarket catalogues (also known as store flyers or circulars) are a popular retail tool for influencing shoppers' behaviour and increasing store sales. Past research has documented varying effects of catalogue promotions on consumer behaviour, but it has not focused specifically on the psychographic and behavioural characteristics of catalogue users. This research aims to fill this gap through an analysis of a representative sample of 506 South Australian consumers. The results show that consumers who use supermarket catalogues are more likely to have one or more of these characteristics: price-consciousness, deal-proneness, low-income, and rarely switches brands. The contribution of this research provides empirical evidence on the user profiles of supermarket catalogues. Retailers and suppliers equipped with this knowledge can create more relevant promotions to increase efficiency and incremental sales.

1. Introduction

Catalogues, also known as flyers, circulars or leaflets, are an important promotional marketing tool used by many retailers across various store types, such as supermarkets, department stores, furniture stores, and specialty stores. Retailers and brand manufacturers use supermarket catalogues to communicate in-store promotions (e.g., price discounts and new product launches) to shoppers hoping to entice consumers to choose their particular supermarket chain and brand of product over the competition.

Supermarket catalogues – hereafter referred to as catalogues – in particular, are a powerful form of marketing and communication, because they reach the majority of the population of consumers either as a hard (distributed via letterbox or available in-store) or digital copy (accessed online). Over 70% of consumers in the United States read store catalogues, while 46% of consumers claim to have visited the store to purchase the advertised item (Govindasamy et al., 2007). In Australia, catalogues have the highest reach – 20.3 million households or 81% of the population¹ – compared to other print media, such as magazines (12.5 million households) and newspapers (16.8 million households)

(Australasian Catalogue Association, 2017). Due to the catalogue's high reach, marketing managers invest a large proportion of their marketing budget towards producing catalogues (Bogomolova et al., 2017). For example, catalogue advertising expenditure is suggested to be over \$2 billion in Australia (Australasian Catalogue Association, cited in *The Print Group*, 2014).

For retailers, a lot of effort is required when using out-of-store promotions to attract customers into the store, as consumers are likely to search, compare and identify the best deal across different retailers (Bogomolova et al., 2017). Consumers could switch over to competitors, if another catalogue features a better deal – thus decreasing the number of customers and sales for the retailers. Hence, there is a need to build more empirical knowledge about consumers who use catalogues (their demographic and psychographic characteristics), and how these characteristics compare to shoppers who do not use catalogues. By having a better understanding of catalogue users, it will help retailers to better design their catalogue promotions and make well-informed marketing decisions.

To the best of the authors' knowledge, only two studies have investigated the different types of consumers and how they react

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¹ According to Australian Bureau of Statistics, the Australian population on August 2018 was at 25 million.

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BEHAVIOURAL AND PSYCHOGRAPHIC CHARACTERISTICS OF SUPERMARKET CATALOGUE USERS

Abstract

Supermarket catalogues (also known as store flyers or circulars) are a popular retail tool for influencing shoppers' behaviour and increasing store sales. Past research has documented the various effects of catalogue promotions on consumer behaviour, but without focusing specifically on the psychographic and behavioural characteristics of catalogue users. This research aims to fill this gap through an analysis of a representative sample of 506 South Australian consumers. The results show that consumers who use supermarket catalogues are more likely to have one or more of these characteristics: price-consciousness, deal-proneness, low-income, and rarely switches brands. This research provides empirical evidence relating to the user profiles of supermarket catalogues. Retailers and suppliers equipped with this knowledge can create more relevant promotions to increase efficiency and incremental sales.

Keywords: catalogues, supermarkets, psychographic characteristics

Introduction

Catalogues, also known as flyers, circulars, or leaflets, are an important promotional marketing tool used by many retailers across various store types, such as supermarkets, department stores, furniture stores, and specialty stores. Retailers and brand manufacturers use supermarket catalogues to communicate in-store promotions (e.g., price discounts and new product launches) to shoppers hoping to entice consumers to choose their particular supermarket chain and brand of product over the competition.

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Retailers expend a great deal of effort in using out-of-store promotions to attract customers into the store, as consumers are likely to search, compare, and identify the best deal across different retailers (Bogomolova et al., 2017). If another catalogue features a better deal, consumers could switch over to competitors – thus decreasing the number of customers and sales for retailers. Hence, there is a need to gather more empirical knowledge about consumers who use catalogues (their demographic and psychographic characteristics) and about how these characteristics compare to shoppers who do not use catalogues. A better understanding of catalogue users will help retailers to better design their catalogue promotions and make well-informed marketing decisions.

To the best of the author's knowledge, only two studies have investigated the different types of consumers and how they react towards promotions (Schneider & Currin, 1991; Ailawadi et al., 2001). Schneider and Currin (1991) focused on consumers who are *actively deal-prone* (consumers who intensively search and locate promotions) and *passively deal-prone* (consumers who limit their promotion search to the in-store environment only). Results from the study showed that consumers typically fall on one end of the scale (either actively or passively deal-prone) and

¹ According to Australian Bureau of Statistics, the Australian population on August 2018 was at 25 million.

are rarely equally active/passive. However, as the authors aggregated store catalogues, coupons, and in-store displays together, the results were not fully isolated for catalogue promotions alone. Ailawadi et al. (2001) separated reactions to store catalogues into in-store and out-of-store deal-proneness. The authors found that store catalogues were more effective in increasing foot traffic and sales when catalogues offer deeper discounts, and promoted a higher proportion of food and private labels. However, their study focused on consumers' choice between national brands and private labels. Other studies focused on measuring consumers' psychographic characteristics in terms of their proneness to promotions (Ailawadi et al., 2001; Blattberg et al., 1995; Kim et al., 1999) or consumers' likelihood to use catalogues (Ailawadi et al., 2001; Martínez & Montaner, 2006; Urbany et al., 1996; Gázquez-Abad et al., 2014). Clearly, however, no existing research has analysed consumers' catalogue usage along with their behavioural, psychographic, and demographic characteristics simultaneously. Furthermore, with the increased focus on healthy eating and diets among consumers, health-consciousness may also be a contributing factor to consumer's likelihood of using catalogues. Hence, a particularly novel aspect of the current study is the inclusion of health-consciousness as a psychographic factor that might explain consumers' likelihood of using catalogues.

In short, the purpose of this paper is to extend both researchers' and practitioners' understanding of the demographic, behavioural, and psychographic characteristics of consumers who have a higher likelihood of using supermarket catalogues. Factor analysis was conducted on consumers' demographic, behavioural, and psychographic characteristics and their catalogue usage, using data from a survey collected from 506 consumers representative of the South Australian population. The contribution of this work to academia is in adding a body of knowledge to the retail shopping research literature and the consumption of promotional media in retail settings. For practitioners, the results will provide a better understanding of catalogue users, allowing them to develop promotions and catalogues that better meet the needs of catalogue users.

Literature Review and Hypotheses

Supermarket catalogues

Various terms have been used in both industry and academia to describe 'catalogue'. Some of these include store flyers, circulars, leaflets, brochures, and pamphlets. For consistency, the term 'catalogue' is used throughout this paper. Previous studies have defined 'catalogue' as 'a paper-type marketing tool that is frequently distributed to households, which features products and promotions by the seller (in this case the retailers and manufacturers)' (Schmidt & Bjerre, 2003, p. 379). Below are some images of a catalogue from the supermarket leader in Australia.

Figure 2 Images of a Catalogue from an Australian Supermarket

Woolworths
The fresh food people

Summer \$2.50 per kg
Cultivated in the USA
\$22 per kg

ANY 2 FOR \$12
SAVE \$1
Beef Scotch Fillet Steak 10kg
Lamb Leg Steak 10kg
Pork Loin 10kg
Chicken 10kg

Meat
Sizzling Aussie meat for the BBQ

Drinks & Snacks

Household & Cleaning

PRICES DROPPED

GET IT CLEAN. KEEP IT FRESH.
NEW LIMITED EDITION FRAGRANCE

Keep a couple of reusable bags in your boot or by the door.

Shop online and have your groceries delivered to your door. woolworths.com.au

Some of the common characteristics of catalogues (Schmidt, & Bjerre, 2003; Gázquez-Abad et al., 2014) include the following:

- Generally, a start and end date are specified as the offers are only for a limited time, such as 7 or 10 days;

- Manufacturers may have to pay a certain fee to the retailer to be featured in the catalogue;
- Retailers may combine the manufacturers' ads with their own private label ads;
- Retailers often strengthen the catalogue with in-store promotions, such as endcaps, bin displays, and shelf talkers;
- Different product categories are often featured, ranging from grocery and fresh produce to household items and pet care;
- They can be accessed either physically (print copy) or digitally (online).

Catalogues are important part of the retail environment as they provide key information with the potential to influence consumers' attitudes and behaviour towards their shopping trips (Cameron et al., 2017). In terms of informativeness for grocery shopping, a catalogue (45%) is considered the most useful media, followed by the Internet (28%) and newspapers (5%) (Roy Morgan, 2017). Catalogues remain a popular promotional tool for retailers due to their widespread reach and readership – an audience reach of 20.1 million and a readership of 69% (Australasian Catalogue Association, 2017).

Furthermore, catalogues act as a tool to build the supermarket's mental availability, which is a consumer's ability to think of a brand during a purchase situation (Romaniuk & Sharp, 2016). As consumers read the catalogue, the supermarket brand is more salient in their mind. Therefore, the supermarket brand will have a higher likelihood of being thought of during the consumer's next grocery shopping trip.

In order to attract consumers in the cluttered retail world, the global consumer packaged goods (CPG) industry has doubled their expenditure on trade promotions, such as discounts, catalogues, features, and displays (Nielsen, 2015). In terms of their functionality for consumers, supermarket catalogues have been used for decades to feature price promotions, deals, and in-store offerings. Consumers have thus been 'trained' to associate catalogues with discounts and financial savings. Classical conditioning theory, which provides a framework for this fact (Blattberg & Neslin, 1990), states that a behaviour is learned by repetitive association between the response and the stimulus. Thus, consumers associate catalogues with price discounts, even when the discount depth is not significant.

Catalogue usage (dependent variable)

Irrespective of the consumers' purpose in reading the catalogue, we considered in this paper that if the consumer has read (or skimmed) a supermarket catalogue within the last four weeks, he/she is

classified as a catalogue user. The degree of catalogue usage classifications was derived from the best-practice industry convention and is in line with previous studies (Martin-Biggers et al., 2013; Ethan et al., 2013; Greene, 2012). It comprises how much detail or information the user obtains from the catalogue.

Consumers use catalogues for various purposes. For example, some rely on catalogues to inform their purchasing decisions, such as what products to buy and which store to shop at, while others use them as an inspiration to plan their meals and try new recipes (Roy Morgan, 2019).

Comparing prices across various retailers could also form a part of a consumer's grocery shopping pre-planning stage. Therefore, it is important that retailers understand consumers' price search behaviours. Gauri et al. (2008) analysed such behaviour across two dimensions: spatial (across different stores) and temporal (across time). One end of the spectrum – consumers who searched across both stores and time – obtained approximately 75% of the available savings in the marketplace, while the other end of the spectrum – consumers who did not exhibit any price search behaviour – obtained approximately 50% of the potential savings. That is, consumers could still enjoy an average of 50% of the available savings in the marketplace just by being at the right place at the right time. Hence, retailers should aim to improve the efficiency of their supermarket catalogues.

Individual consumers may evaluate and value the benefits and costs of promotion differently – including potential differentiation between deal-prone consumers and non-deal-prone consumers (Blattberg et al., 1978; Lichtenstein et al., 1997; Martínez, & Montaner, 2006). Based on previous studies, we highlight below the psychographic characteristics of consumers with a potentially higher likelihood of using catalogues.

Characteristics of catalogue users (independent variables)

Price consciousness and perceived financial constraints

Generally speaking, a sales promotion provides some form of financial benefit, such as price reductions, free items, or bonus gifts. These benefits are important for price-conscious consumers. The term price-conscious can be defined as consumers' tendency to be more sensitive to or aware of changes in price (Ailawadi et al., 2001). Hence, financial savings is an important and relevant aspect for price-conscious consumers. Studies have shown that price-conscious consumers are more likely to be influenced by promotions (Ailawadi et al., 2001; Blattberg et al., 1995). In order to reap the benefit of a promotion, consumers who are more price-conscious are more likely to make the effort to search for price information (Kim et al., 1999). In addition, consumers' financial situation may also influence their reaction towards promotions. Consumers with perceptions of financial constraints would consider themselves to be on a tighter budget. Therefore, they could

also be price-conscious and willing to make the effort to compare prices in order to save money (Ailawadi et al., 2001). Hence, price-consciousness and perception of financial constraints would lead to higher catalogue usage, as promotions often provide financial savings. As a result, the first and second hypotheses are as follows:

H1. Price-conscious consumers are more likely to use catalogues than consumers who are not price-conscious.

H2. Consumers with perceived financial constraints are more likely to use catalogues than consumers without perceived financial constraints.

Deal proneness

Previous studies analysing consumers' response to promotions and deals often uses the term "deal-proneness", which can be defined as the consumers' likelihood to make use of the promotion (generally, a temporary financial discount) by making a purchase decision (Blattberg & Neslin, 1990; Montgomery, 1971; Webster, 1965). However, research results have not been conclusive. Some studies found deal-proneness to be a generalised construct; that is, if a consumer is deal-prone, he/she will also be sensitive to any other type of promotional activities, be it in-store or out-of-store (Price et al., 1988; Shimp & Kavas, 1984). On the other hand, some studies found that consumers may respond to one type of deal but not to others (Ailawadi et al., 2001; Schneider & Currin, 1991). Ailawadi et al. (2001) found that there is a distinction between consumers' reaction towards in-store and out-of-store promotions. This is similar to Schneider and Currin's (1991) study, which found that consumers are either actively deal-prone or passively deal-prone, but rarely equally active/passive. Therefore, consumers can be classified into two mutually exclusive categories: deal-prone or promotion-insensitive. Although these studies covered different types of deals, none focused specifically on supermarket catalogues. Therefore, to analyse whether or not deal-prone consumers use catalogues, the third hypothesis is as follows:

H3. Deal-prone consumers are more likely to use catalogues than consumers who are not prone to deals.

Variety seeking

In the fast-moving consumer goods industry, in which supermarkets play a key role, consumers generally purchase from a repertoire of retailer brands. That is, consumers shuffle and switch between retailers and have polygamous loyalty (Keng & Ehrenberg, 1984; Sharp et al., 2002). In Australia, only 28% of consumers stick with the same supermarket for all their grocery shopping needs (Canstar Blue, 2019). In other words, more than 70% of consumers shop across multiple

supermarket chains to fulfil their buying needs. The same switching among brands within a category was found in Ailawadi et al.'s (2001) study: variety seeking is a characteristic that is evoked through exploration and linked with higher usage of deals. Variety-seeking consumers also exhibit a favourable attitude towards trying new products and enjoy brand switching, rather than always purchasing a limited repertoire of products (Montgomery, 1971). In other words, consumers who are more likely to seek variety in their consumption and purchasing are more sensitive to promotions because it provides an opportunity to satisfy their natural curiosity. Therefore, the fourth hypothesis is as follows:

H4. Variety-seeking consumers are more likely to use catalogues than consumers who rarely switch brands.

Health consciousness

Health consciousness can be defined as consumers' motivation to engage in healthy behaviours that result in enhancing and/or sustaining their well-being (Mai & Hoffmann, 2012). The World Health Organization (WHO, 2018) found that a healthy diet helps to protect against non-communicable diseases, such as diabetes, heart disease, stroke, and cancer. For an adult, a healthy diet includes a wide variety from the five core food groups (vegetables and legumes, fruits, grains, meats, and dairy) and limits the intake of foods high in salt and saturated fat (Australian Government NHMRC, 2019). More recently, consumers' consideration for a healthy diet has become more prominent in their lifestyle, such as buying healthier foods when grocery shopping. Health-conscious consumers tend to exert more cognitive effort when making a purchase decision, as they are more likely to compare products based on health attributes, such as fat and sugar contents (Mai & Hoffmann, 2012). Health-conscious consumers are also more likely to plan their grocery shopping and prepare healthful meals (Hollywood et al., 2013). Theoretically, this could lead to higher catalogue usage, as these consumers are more likely to scrutinise offers for any healthy options on promotion. On the other hand, Charlton et al. (2015) found that supermarket catalogues from most countries contained a higher proportion of junk food than healthy food. This is consistent with past studies that also found that the front pages of supermarket catalogues did not reflect national dietary guidelines (Martin-Biggers et al., 2013; Ethan et al., 2013). Due to the high number of unhealthy food items advertised in supermarket catalogues and the lack of health-related information provided in the catalogue (i.e., there is no nutrition information), health-conscious consumers may be less likely to be interested in reading the catalogues. Therefore, we propose the following hypothesis:

H5. More health-conscious consumers are less likely to use catalogues than consumers who are less health-conscious.

Demographic characteristics

Consumer demographics also play an important role in influencing consumers' catalogue usage and are commonly used as segmentation or targeting tools (Ailawadi et al., 2001; Martínez & Montaner, 2006; Urbany et al., 1996). These demographic characteristics typically include gender, age, and annual income.

Past research found that deal-prone consumers tend to be females (Blattberg et al., 1978; Webster, 1965). More specifically, females tend to be more prone towards "hi-lo" promotions (Pechtl, 2004). In the United States, 57% of female shoppers used supermarket catalogues to check for special promotions, as compared to 49% of men (Food Marketing Institute, 2014). Past studies on coupons, which is another popular form of price promotion in the retail industry, showed that females are more likely to search for and use coupons to save money than male consumers (Integer US, 2011; Harmon & Hill, 2003; Ha & Im, 2014). Therefore, we propose the following hypothesis:

H6. Females are more likely to use catalogues than males.

Older consumers have lower time constraints and tend to do more extensive search (Urbany et al., 1996), which suggests that older consumers could have more time on hand to use catalogues. Older consumers, as compared to the younger households, are more experienced, have accumulated more knowledge about products and prices, and hence are more likely to be prudent and seek out price promotions. Past studies have suggested that older consumers are more likely to use catalogues (Gázquez-Abad et al., 2014; Fam et al., 2019). In Australia, over 80% of catalogue readers are consumers born in or before 1990 (Roy Morgan, 2019). Therefore, we propose the following hypothesis:

H7. Older consumers are more likely to use catalogues than younger consumers.

Understandably, consumers with lower disposable incomes may be more susceptible to promotions and deals. Household income plays an important role in consumers' grocery budget, which indicates that households with lower income levels are more likely to make price comparisons (Goldman & Johansson, 1978; Hoch et al., 1995; Krishna et al., 1991). Consistently, utility theory suggests a trade-off between the cost (e.g., time and effort) and monetary savings, with low-income consumers being more prone to price promotions and discounts (Blattberg & Neslin, 1990; Fam et al., 2019). This leads to the following hypothesis:

H8. Consumers with lower incomes are more likely to use catalogues.

Shopping list

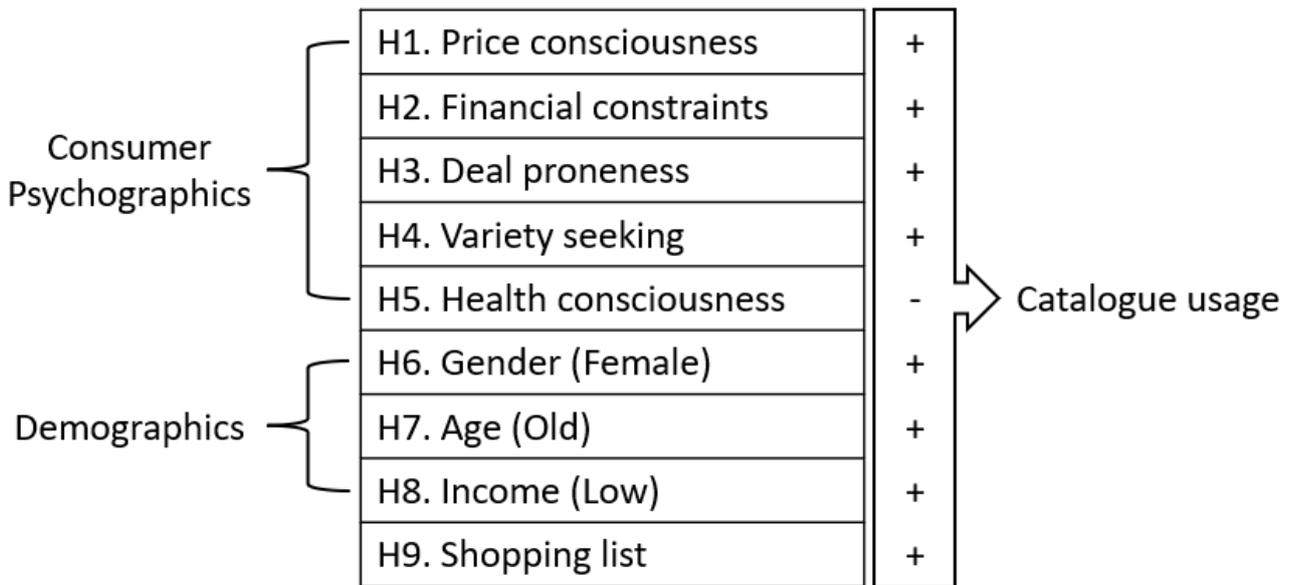
Price promotions are considered a necessary part of retail marketing to consumers, as well as relationship building between brand owners and retail networks (Bogomolova et al., 2017; Zippel et al., 2013). Moreover, it is also important to understand how consumers react towards promotions. During the purchase decision process, consumers might weigh the pros and cons of the promotion, which will influence their purchase decision (Ailawadi et al., 2001). Some of the benefits of promotions are that consumers enjoy the perception of cost saving, obtaining a product at a lower price, and having access to higher quality products, which they might not have purchased at full price (Ailawadi et al., 2001; Chandon et al., 2000; Martínez & Montaner, 2006). On the other hand, consumers will expend precious time and effort in searching and comparing promotions (Martínez & Montaner, 2006). Price search can be defined as the consumers' effort in obtaining the price of certain items across multiple stores or vendors in a given period, which is the basis of search behaviour within the classic economics-of-information model (Urbany et al., 1996). Therefore, price search is one of the goals consumers might pursue when they read supermarket catalogues.

Consumers often use catalogues as a planning tool to check product prices, which products to purchase, and which supermarket stores to visit. Similarly, a shopping list can also act as a tool to help consumers plan their shopping trip. Shopping lists can take the form of a written physical copy or a mental list in the consumer's mind (Thomas, & Garland, 2004). For example, in the United States, 61% of American shoppers make a physical shopping list, while 31% of shoppers have a mental list before going shopping (Food Marketing Institute, 2014). In Australia, 77% of consumers use a shopping list when grocery shopping (Glowfeed, 2017). In New Zealand, 88% of grocery shoppers carry a list, physical or mental, with them on their shopping trip (Thomas, & Garland, 2004). Consumers planning their shopping trip ahead of time are more structured and deliberate when shopping. This form of pre-planning could resemble consumers seeking information or surveying prices when reading catalogues. Therefore, we propose the following hypothesis:

H9. Consumers with a shopping list are more likely to use catalogues than consumers without a shopping list.

A graphical summary of the proposed hypotheses is presented in Figure 3.

Figure 3 *Conceptual Model and Hypotheses*



Method

The dataset was collected in 2018 and consisted of 506 respondents, representative of the population of South Australia in terms of age, gender, and income according to the 2016 Australian Bureau of Statistics census. Data were collected using the professional panel provider Toluna (www.toluna.com.au). Participants were screened on two criteria: a) were primarily responsible for grocery shopping for the household, and b) had purchased from a supermarket in the last six months. The sample presented an equal split between males and females (similar to the census), had an average annual household income bracket of \$30,000 to \$59,999 (similar to the census), and had a median age of 54 (slightly higher than the state median age of 40). Appendix A shows the full questionnaire. Table 1 shows the results of the descriptive analysis of the respondents:

Table 1 *Results of Respondents' Descriptive Analysis*

| Demographic | | Percentage (%) |
|--------------|-----------------------|----------------|
| Gender | Male | 50 |
| | Female | 50 |
| Age | < 29 years old | 11 |
| | 30 – 59 years old | 52 |
| | 60+ years old | 38 |
| Income level | Less than \$60,000 | 53 |
| | \$60,000 to \$119,999 | 34 |
| | \$120,000 or above | 13 |

Appendix B presents the items for all the constructs used in this study. All attitudinal constructs were measured on a seven-point Likert scale (1: “I totally disagree” to 7: “I totally agree”). All items were taken from prior studies:

- Price Consciousness Scale, Variety Seeking Scale and Financial Constraints Scale items were based on Ailawadi et al.’s (2001) study.
- Deal Proneness Scale items were based on Lichtenstein et al.’s (1997) study.
- Health Consciousness Scale items were based on Mai and Hoffmann’s (2012) study.

Results

Below are descriptive results of the respondents’ shopping list and catalogue usage.

Shopping List Usage Descriptive Results

Descriptive analysis was carried out for consumers’ usage of a shopping list. Consumers were asked whether they had used any form of shopping list during their most recent shopping trip: print (written) shopping list; electronic (i.e., on mobile) shopping list; mental shopping list; no shopping list; or don’t know/can’t remember. Results are shown in the table below.

Table 2 *Descriptive Analysis of Shopping List Usage*

| Shopping List | Frequency | Percentage (%) |
|--|------------------|-----------------------|
| Print (written) shopping list | 269 | 53.2 |
| Electronic (i.e., on mobile) shopping list | 58 | 11.5 |
| Mental shopping list | 116 | 22.9 |
| No shopping list | 58 | 11.5 |
| Don’t know/can’t remember | 5 | 1.0 |

Consumers who had any form of a shopping list – print, electronic, and/or mental – were recoded as *with shopping list*, while those with no shopping list remained as *no shopping list*. Therefore, 88% of consumers had a shopping list, while 12% did not have a shopping list.

Catalogue Usage Descriptive Results

Consumers’ catalogue usage was measured in the descriptive analysis. Consumers were asked about the frequency of their catalogue usage in the last four weeks: once in the last four weeks; twice in the last four weeks; three times in the last four weeks; four times in the last four weeks; never; or don’t know/unsure. Within the Australian supermarket catalogue context, the online

version of the catalogue is the same as the physical copy. Hence, there was no separate analysis for online versus physical copy. Results are shown in the table below.

Table 3 *Descriptive Analysis of Catalogue Usage*

| Catalogue Usage | Frequency | Percentage (%) |
|-----------------------------|------------------|-----------------------|
| 4 times in the last 4 weeks | 191 | 37.7 |
| 3 times in the last 4 weeks | 41 | 8.1 |
| Twice in the last 4 weeks | 66 | 13.0 |
| Once in the last 4 weeks | 74 | 14.6 |
| Never | 118 | 23.3 |
| Don't know/unsure | 16 | 3.2 |

The catalogue usage of consumers who used no catalogue in the past four weeks was recorded as 'no', while consumers who used a catalogue one to four times in the past four weeks were combined together into 'yes'. Consumers who answered *don't know/unsure* were removed from the analysis. Therefore, 76% of consumers were catalogue users, while 24% were not catalogue users. Thus, in the regression models, catalogue usage was used as the dependent variable, with 'yes' = 1, no = 0.

Scale Reliability Results

A descriptive analysis was conducted on each item of the scales. Results are shown in Table 4.

Table 4 *Descriptive Analysis of Each Scale Item*

| Scale^a | Statement | Mean | SD |
|--------------------------|--|-------------|-----------|
| PC | I compare the prices of different brands to be sure I get the best value for my money | 5.49 | 1.57 |
| PC | I always check prices at the grocery store to be sure I get the best value for the money I spend | 5.44 | 1.60 |
| PC | I compare prices of different stores to get the best price | 4.89 | 1.94 |
| FC | My household budget is always tight | 4.98 | 1.94 |
| FC | My household often has problems making ends meet | 3.57 | 2.10 |
| DP | I always try to buy the brand that is on special | 5.14 | 1.55 |
| DP | Catalogues influence me to buy the brands I would not normally buy | 3.83 | 2.03 |
| DP | I am more likely to buy brands that are displayed at the end of the aisle | 3.36 | 1.70 |

| | | | |
|----|---|------|------|
| VS | I buy different brands to get some variety | 4.44 | 1.60 |
| VS | If I use the same brands over and over again, I get tired of them | 3.26 | 1.65 |
| HC | I'm generally attentive to my inner feelings about my health | 4.83 | 1.51 |
| HC | I'm very self-conscious about my health | 4.65 | 1.68 |
| HC | I reflect about my health a lot | 4.55 | 1.69 |
| HC | I'm constantly examining my health | 4.34 | 1.65 |

^a PC = Price Conscious; DP = Deal Proneness; VS = Variety Seeking; HC = Health Conscious; FC = Financial Constraints

The scale had a good convergent validity as the inter-item correlation between the items of the scale was above 0.3 (Nunnally, 1978). Discriminant validity was established as the correlation between each scale is lower than 0.85 (Nunnally, 1978) (see Appendix C for details).

The reliability of each scale was tested using Cronbach's Alpha. As shown in Table 5, the reliability of *price consciousness*, *financial constraints*, *deal proneness*, and *health consciousness* were acceptable, because all Cronbach's Alpha values were 0.7 or above, while *variety seeking* showed moderate reliability with a Cronbach's Alpha value of 0.6 (Nunnally, 1978; Hinton et al., 2014).

Table 5 Scale Reliability

| Dimension | Cronbach's Alpha |
|-----------------------|------------------|
| Price consciousness | 0.8 |
| Financial constraints | 0.8 |
| Health consciousness | 0.8 |
| Deal proneness | 0.7 |
| Variety seeking | 0.6 |

Binomial Logistic Regression Results

A binomial logistic regression was conducted to predict whether consumers would use a catalogue or not (yes/no) based on various demographic and psychographic characteristics (as proposed in the hypotheses). The mean across each scale's items for each consumer was calculated and loaded onto the binomial logistic regression. Multilevel modelling was used to analyse consumers' catalogue usage, their psychographic characteristics, and their demographics simultaneously. Model 1 included the five psychographic factors: price consciousness, financial constraints, deal proneness, variety seeking, and health consciousness. Model 2 added the categorically coded demographics: gender (reference category: female); 'Age 1' = less than 29 years old, 'Age 2' = 30 to 59 years old (reference category: 60+ years old); 'Income 1' = less than \$60,000, 'Income 2' =

\$60,000 up to \$119,999 (reference category: \$120,000 or above); and shopping list (reference category: no shopping list).

Model 1

Model 1 used the five psychographic factors to predict whether consumers would use a catalogue or not. The model was statistically significant, with $\chi^2(5) = 96.91, p < .001$, and explained 30% (Nagelkerke R^2) of the variance in catalogue usage and correctly predicted 79% of cases. As shown in Table 6, only two out of the five psychographic factors were statistically significant. *Deal proneness* had the highest positive effect: deal-prone consumers were more likely to use catalogues than consumers who are not deal prone ($b = 0.75, p < .001$). *Price consciousness* was also positively associated with catalogue usage ($b = 0.30, p < .001$). On the other hand, *variety seeking*, *health consciousness*, and *financial constraints* were not statistically significant.

Table 6 Model 1: Logistic Regression Results

| | B | S.E. | Wald | df | Sig. | Exp(B) |
|----------------------------|-------------|-------------|--------------|-------------|-------------|-------------|
| Deal proneness | 0.75 | 0.13 | 32.75 | 1.00 | 0.00 | 2.12 |
| Price consciousness | 0.30 | 0.10 | 9.91 | 1.00 | 0.00 | 1.36 |
| Health consciousness | 0.02 | 0.10 | 0.04 | 1.00 | 0.84 | 1.02 |
| Financial constraints | -0.03 | 0.07 | 0.15 | 1.00 | 0.70 | 0.97 |
| Variety seeking | -0.19 | 0.11 | 2.88 | 1.00 | 0.09 | 0.83 |
| Constant | -2.50 | 0.67 | 14.11 | 1.00 | 0.00 | 0.08 |

DV = Catalogue usage (yes = 1, no = 0)

Model 2

Model 2 added consumer demographic variables: gender, income, age, and shopping list usage. Model 2 was statistically significant, with $\chi^2(6) = 13.24, p < .05$. The model explained 33.6% (Nagelkerke R^2) of the variance in catalogue usage and correctly predicted 80.6% of cases, a slight improvement over Model 1. Three out of five psychographic factors showed a statistically significant effect. Similar to Model 1, *deal proneness* retained the highest positive effect ($b = 0.81, p < .001$). H3 was supported: deal-prone consumers are more likely to use catalogues than consumers who are not prone to deals. *Price consciousness* was also associated with catalogue usage ($b = 0.29, p < .001$). H1 was supported: price-conscious consumers are more likely to use catalogues than consumers who are not price-conscious. Interestingly, *variety seeking* was statistically significant, but the effect was in the opposite direction ($b = -0.25, p < .05$). So, H4 is rejected, because variety-seeking consumers are less likely to use catalogues than consumers

who rarely switch brands. *Financial constraints* and *health consciousness* were not statistically significant. Therefore, H2 and H5 were rejected.

For demographic variables, consumers with an annual income of less than \$60,000 were more likely to use catalogues ($b = 0.89, p < .05$), compared to the wealthiest group (\$120,000 or above). H8 was supported: consumers with lower incomes are more likely to use catalogues. Gender, both age groups, income level of \$60,000 to \$119,999, and use of a shopping list were not statistically significant.

Table 7 Model 2: Logistic Regression Results

| | B | S.E. | Wald | df | Sig. | Exp(B) |
|------------------------|--------------|-------------|--------------|-------------|-------------|-------------|
| Deal proneness | 0.81 | 0.14 | 34.01 | 1.00 | 0.00 | 2.24 |
| Price | | | | | | |
| consciousness | 0.29 | 0.10 | 8.46 | 1.00 | 0.00 | 1.33 |
| Health | | | | | | |
| consciousness | 0.02 | 0.11 | 0.04 | 1.00 | 0.83 | 1.02 |
| Financial constraints | -0.01 | 0.07 | 0.02 | 1.00 | 0.88 | 0.99 |
| Variety seeking | -0.25 | 0.12 | 4.45 | 1.00 | 0.04 | 0.78 |
| Income1 | 0.89 | 0.39 | 5.22 | 1.00 | 0.02 | 2.44 |
| Income2 | 0.73 | 0.40 | 3.37 | 1.00 | 0.07 | 2.07 |
| Shopping list | 0.63 | 0.37 | 2.94 | 1.00 | 0.09 | 1.88 |
| Age2 | -0.03 | 0.32 | 0.01 | 1.00 | 0.92 | 0.97 |
| Gender | -0.34 | 0.28 | 1.54 | 1.00 | 0.22 | 0.71 |
| Age1 | -0.64 | 0.43 | 2.21 | 1.00 | 0.14 | 0.53 |
| Constant | -3.47 | 0.87 | 15.89 | 1.00 | 0.00 | 0.03 |

DV = Catalogue usage (yes = 1, no = 0)

Gender = Male (Reference category = Female)

Income1 = Less than \$60,000; Income 2 = \$60,000 up to \$119,999 (Reference category = \$120,000 or above)

Age 1 = <29 years old; Age 2 = 30 to 59 years old (Reference category = 60+)

Crosstab between each scale and demographic was carried out to give confidence to the results. Crosstabs that showed significant results were deal proneness and age, $\chi^2(46) = 85.89 (p < .05)$; deal proneness and income, $\chi^2(44) = 60.06 (p < .05)$; and variety seeking and income $\chi^2(24) = 39.73 (p < .05)$ (see Appendix D).

A summary of the research hypothesis and its corresponding results is presented in Table 8.

Table 8 Summary of Research Hypotheses and Results

| Hypotheses | Result |
|------------|--------|
|------------|--------|

| | |
|---|-----------|
| H1. Price-conscious consumers are more likely to use catalogues than consumers who are not price-conscious | Supported |
| H2. Consumers with financial constraints are more likely to use catalogues than consumers who do not have financial constraints | Rejected |
| H3. Deal-prone consumers are more likely to use catalogues than consumers who are not prone to deals | Supported |
| H4. Variety-seeking consumers are more likely to use catalogues than consumers who rarely switch brands | Rejected |
| H5. More health-conscious consumers are less likely to use catalogues than consumers who are less health-conscious | Rejected |
| H6. Females are more likely to use catalogues than males | Rejected |
| H7. Older consumers are more likely to use catalogues than younger consumers | Rejected |
| H8. Consumers with lower incomes are more likely to use catalogues | Supported |
| H9. Consumers who use shopping list are more likely to use catalogues | Rejected |

Discussions and Contributions

The main contribution of our study is providing an increased understanding of the effects of catalogue usage in a retail context. We have combined and replicated the findings of separate past studies that examined catalogues as one of the elements in the mix (Ailawadi et al., 2001; Blattberg et al., 1995; Lichtenstein et al., 1997; Mai & Hoffmann, 2012; Martínez, & Montaner, 2006). Our second contribution is the novel inclusion of health consciousness as a psychographic factor influencing catalogue usage. In addressing these two objectives, our study offers a greater understanding of the behavioural and psychographic characteristics of catalogue users. More broadly, our study offers a deeper understanding of how consumers react to promotional material in a retailing context – and how they select their retail stores during out-of-store planning behaviour. While numerous past studies have looked into the effects of out-of-store and in-store advertising, we have demonstrated that consumers with one or more characteristics – price-conscious, deal-prone, from low-income background, and lower probability of brand switching – are more likely to be typical catalogue users. This knowledge helps academics and practitioners to better understand the possible effective and efficient methods of activation influencing these consumers' purchases through catalogue communication.

The results are relevant to both academia and practitioners.

Contribution to Academic Literature

For academia, our work adds knowledge to the retail shopping research literature. In particular, results from this study increase the data and reliability of the existing scales: price consciousness, variety seeking, financial constraints (Ailawadi et al., 2001), deal proneness (Lichtenstein et al., 1997), and health consciousness (Mai & Hoffmann, 2012).

This study reinforces and supports past studies that found that catalogue promotions are more likely to be attractive for consumers with certain psychographic characteristics (Ailawadi et al., 2001; Blattberg et al., 1995; Goldman & Johansson, 1978; Hoch et al., 1995; Krishna et al., 1991). The robustness of this study is that it analyses consumers' catalogue usage, their psychographic factors and demographics simultaneously, rather than merely focusing on one piece of the puzzle. One important finding was that for this sample in South Australia, 76% of supermarket shoppers had looked at a catalogue in the past four weeks. This is a very high penetration and probably behind the lack of demographic differences between users and non-users, since three-quarters of shoppers use catalogues.

Supermarket catalogues generally promote discounted products, which in turn provide financial savings. Results from our study are in line with past literature stating that price-conscious consumers are more likely to be influenced by promotions (Ailawadi et al., 2001; Blattberg et al., 1995). However, consumers who perceive they have financial constraints were not statistically more likely to use catalogues. The results from this study appear to show that consumers' perception of their financial situation is not a strong enough motivator for them to use catalogues. Due to the nature of the categories represented in catalogues (i.e., hedonic products), consumers with financial constraints may also actively avoid promotional catalogues, so as to avoid being enticed to buy such categories.

In addition, our study expands the literature on consumers' response towards promotions, as past studies did not focus on supermarket catalogues (Ailawadi et al., 2001; Price et al., 1988; Schneider & Currim, 1991; Shimp & Kavas, 1984). Results showed that deal-prone consumers are more likely to use catalogues, as compared to promotion-insensitive consumers.

In contrast to past studies (Ailawadi et al., 2001, Montgomery, 1971), our study showed that variety seekers are less likely to use catalogues, as compared to consumers who rarely switch brands. Variety seekers tend to be heavy category and brand users. Given the high prevalence of price promotions in modern markets (Bogomolova et al., 2015), it is plausible that one of their brands would be promoted in the catalogue in any given week. Hence, variety seekers are less likely to use catalogue. On the other hand, consumers who are brand loyal and buy fewer brands could benefit from using catalogues to find when and in which retail chain 'their' brand is on promotion.

Although past research found that females are more sensitive towards promotions than males (Blattberg et al., 1978; Webster, 1965) and that older consumers are more likely to price search across stores (Urbany et al., 1996), our research found no statistically significant effect of gender or age on catalogue usage.

Consumers with low incomes have tighter budgets and are more likely to be influenced by promotions. Hence, they are more likely to make the effort to read catalogues to reap the financial savings. Results from our study support past studies showing that households with lower incomes are more susceptible to promotions (Goldman & Johansson, 1978; Hoch et al., 1995; Krishna et al., 1991).

Furthermore, a novel aspect of this study is the inclusion of health consciousness as a psychographic factor that might affect a consumer's catalogue usage. With the increasing focus on healthy eating and diet, consumers might turn to supermarket catalogues to seek out healthy food, such as the five core food groups recommended by the Australian Guide to Healthy Eating (Australian Government NHMRC, 2019). Interestingly, results from this study showed that there was no statistically significant effect between health consciousness and catalogue usage. This probably stems from the fact that most foods advertised in catalogues are not healthy (Charlton et al., 2015; Ethan et al., 2013; Martin-Biggers et al., 2013).

Contribution to Industry Practice

For practitioners, the results are relevant for retailers as they are able to modify their catalogue advertisements to better suit their target audience, which is a consumer who possesses one or more of these characteristics: price-conscious, deal-prone, low likelihood to seek variety, and with a low income. This would make their marketing activities more efficient. For example, to appeal to the price-consciousness aspect of consumers, supermarkets could focus on the dollar savings rather than on competitions or gifts. Everyday low price (EDLP) types of promotion could be more tempting for low-income consumers as they are on a tighter budget. In order to engage with the consumers who rarely switch brands, retailers could cycle through promotions periodically. Suppliers and retailers should also work together to ensure that popular traffic driving products are prioritised and promoted first, before offering shallow discounts on the less popular lines.

Furthermore, suppliers can also use the results from this study to guide them in creating better and more efficient catalogue promotions; for example, promotions that focus more on price discounts, than on messaging (e.g., flour featured in a cake recipe, or "new product", or "healthy for you", etc.). With the catalogue's widespread reach, retailers could also build or maintain their brand perception among catalogue users, such as value for money, or have an extensive range of brand products, or have attractive price promotions, etc.

Catalogue promotions that are relevant to consumers means that supermarket managers are not wasting valuable “real estate” space in the catalogue. With better-suited catalogue promotions, consumers are more likely to shop with the retailers than their competitors. In turn, these relevant catalogue promotions have a higher likelihood of increasing the store’s sales.

Findings from this study suggest that traditional door-drop media, such as catalogues, are still effective and have high readership. Approximately 76% of consumers have read at least one catalogue in the past four weeks, while 54% have read every page of a catalogue. Also, contrary to some beliefs, older consumers are not the only ones to use catalogues: over 52% of catalogue users were between 30 and 59 years of age.

Conclusions

The aim of this paper was to better understand the psychographic and demographic characteristics of catalogue users and which consumer-related factors could lead to a higher propensity of supermarket catalogue usage. Supermarket catalogues are a high-reaching medium but an expensive retail tool to influence consumer behaviour and increase store sales. A huge amount of time and money is required to manage catalogue promotions. Therefore, it is important for retailers to understand catalogue-user profiles and to improve the sales efficiency of catalogue promotions. This study showed that a typical user of a supermarket catalogue may possess one or more of these characteristics: price-conscious, deal-prone, low likelihood to seek variety, and with a low income.

Limitations and Future Research

Several limitations may restrict the generalizability of our findings. The sample for this research was collected in South Australia, and thus strongly influenced by the local competitive environment (i.e., a strong market controlled by the two largest supermarket chains (67.5%), with the rest shared by smaller supermarkets (IBISWorld, 2018). Furthermore, the regression model predicts 82% of the cases, which suggests that other unidentified factors could contribute to higher catalogue usage. Future research should identify these additional factors; for example, the promoted product’s inventory level in the household, and how consumers ‘decode’ the catalogue design and content.

Consumers’ catalogue usage might change over time. Future research should also analyse whether and how this behaviour changes over time. Other external factors may also influence consumer behaviour, especially macro-environmental factors such as consumer confidence, the

general economy, and increased access to alternative channels (e.g., online shopping). Future studies should also include more non-catalogue users in order to have a more robust sample, which could show a clearer distinction in the catalogue vs. non-catalogue users' behaviours.

Furthermore, this paper focused on supermarkets and consumer packaged goods (CPG). Future research should also expand this scope to analyse the promotional catalogues of other industries, such as department stores, electrical goods, housewares, and others.

In summary, results from this research do suggest that catalogue users tend to possess certain psychographic characteristics. Breaking down the silos and having seamless discussions among marketing managers, retailers, and academic researchers would be most fruitful in creating effective catalogue promotions.

CHAPTER 3: STUDY 2

Chapter 3 presents the second study of this thesis. This study was published in the *International Journal of Advertising* (IJA). This journal publishes original contributions on all aspects of marketing communications from the academic, practitioner, and public policy perspectives. The journal is ranked A under the 2022 Australian Business Deans Council (ABDC). IJA has a CiteScore of 7.6 and five-year Impact Factor of 6.26. It is ranked #10 in Communication under Google Scholar Metrics, with a h5-index of 43.

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Audit and benchmarking of supermarket catalog composition in five countries

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ABSTRACT

The role of the catalog in retail advertising remains important, even as advertising is gradually shifting to digital formats. The overarching objective of this study is to synthesize current practices in supermarket catalogs, identify key trends in content, composition, format, and layout, and compare results across countries. This paper investigates the content of 39 catalogs from 13 supermarket chains in five countries (Australia, Malaysia, New Zealand, South Africa, and the United States). The coding scheme and variables are based on main design elements in print advertising to examine the catalogs objectively. The results show that catalogs are not merely a media to advertise temporary price reductions, but they have evolved into a media tool to promote supermarkets' product range, including full-price products. This study applies findings from print media to the supermarket catalog sector and provides a quantitative benchmark for typical content, composition, format, and layout, comparing results across countries.

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Introduction

Catalogs are typically printed advertisements used by retailers to communicate in-store price promotions during a specified period of time (Gijbrecchts, Campo, and Goossens 2003; Pieters, Wedel, and Zhang 2007). Catalogs are also referred to as store flyers, circulars, feature advertising, or brochures. Catalogs are one of the most important and prevalent marketing tools in the retail industry (Blattberg and Neslin 1990; Pieters, Wedel, and Zhang 2007; Zhang, Wedel, and Pieters 2009; Ieva et al. 2022). In the United States, the most recent statistics show that retailers spend more than US\$20 billion on printed catalogs (PRIMIR 2013), a figure that represents 60–70% of their marketing budget (Nielsen 2011). In Australia, on the other hand, catalog

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AUDIT AND BENCHMARKING OF SUPERMARKET CATALOGUE COMPOSITION IN FIVE COUNTRIES

Abstract

The role of the catalogue in retail advertising remains important, even as advertising is gradually shifting to digital formats. The overarching objective of this study is to synthesize current practices in supermarket catalogues, identify key trends in content, composition, format, and layout, and compare results across countries. This paper investigates the content of 39 catalogues from 13 supermarket chains in five countries (Australia, Malaysia, New Zealand, South Africa, and the United States). The coding scheme and variables are based on main design elements in print advertising to examine the catalogues objectively. The results show that catalogues are not merely media to advertise temporary price reductions, but have evolved into a media tool to promote supermarkets' product range, including full-price products. This study applies findings from print media to the supermarket catalogue sector and provides a quantitative benchmark for typical content, composition, format, and layout, comparing results across countries.

Keywords: supermarket catalogue; content analysis; price promotion; print advertising

Introduction

Catalogues are typically printed advertisements used by retailers to communicate to consumers price promotions taking place in-store over a specified period of time (Gijsbrechts et al., 2003; Pieters et al., 2007). Catalogues are also referred to as store flyers, circulars, feature advertising, or brochures. Catalogues are one of the most important and prevalent marketing tools used in the retail business (Blattberg & Neslin, 1990; Pieters et al., 2007; Zhang et al., 2009; Ieva et al., 2022). In the United States, the most recent statistics available show that retailers spend more than US\$20 billion on printed catalogues (PRIMIR, 2013), a figure which represents 60-70% of their marketing budget (Nielsen, 2011). In Australia, to give another example, catalogue advertising expenditure is over AU\$2 billion (Australasian Catalogue Association, as cited in The Print Group, 2014). Almost 11.2 million Australians aged 14 and over have read a catalogue in the last four weeks, and 55% of primary grocery buyers have made a purchase after reading a catalogue in the last seven days (The Real Media Collective, 2018). Given the substantial spending and the continuous relevance on this advertising format, along with the high prevalence of catalogues, it is important for retailers to justify this cost and carefully manage their catalogue efficiencies. Despite the advances in digital technology, print catalogues remain prevalent, with 68% of consumers between 25 and 34 years old reading print catalogues, as compared to 12% accessing it online (The Real Media Collective, 2018). Moreover, the content and layout of the print and online catalogues are relatively similar.

Catalogue production requires input from both retailers and manufacturers. However, due to the confidential nature of the decisions and negotiation processes involved in catalogue production, there is a lack of publicly available and documented evidence to adequately understand how retailers decide on their catalogue composition and whether there are any underlying principles in its construction. Without any foundational knowledge of the current industry practices in catalogue layouts and content, there is little generalizable knowledge and guidance available to retailers to guide their efforts in improving the accountability and effectiveness of their decisions to advertise through catalogues. Being able to produce effective catalogue advertisements could be useful for all parties involved (retailers, manufacturers, and advertising professionals), especially in terms of costs, return on investment, and consumer reach. Looking at the market segmentation of catalogue producers, the leading sector is supermarkets (22%), followed by department stores (12%), specialty retail (10%), and furniture (9%) (Australasian Catalogue Association, 2017). Supermarkets generally produce new catalogues on a weekly basis, as compared to the other sectors (e.g., department stores, furniture stores, sports, and fitness), which do so only on a monthly basis. Given that this is one of the first studies to audit catalogues from an advertisement perspective, the focus is on supermarkets – the market leader for catalogue production and distribution. The research findings from this study would contribute to establishing generalizable knowledge and guidance for retailers, especially within the context of supermarket catalogues.

Most past academic studies analysing supermarket catalogue content have focused primarily on the health aspect of catalogues, with the aim of calculating the proportion of unhealthy foods being advertised (Charlton et al., 2015), or alcoholic beverages (Johnston et al., 2017), or how the advertised range adheres or not to the national dietary guidelines (Cameron et al., 2015; Jahns et al., 2014). The lack of similar studies from a marketing and advertising perspective with a view to better understanding catalogues as promotional tools is a notable gap in the literature. Without a knowledge of the common practice in creating catalogue promotions, i.e., *de facto* catalogue norms, retailers often carry out their promotion activities in a reactive ‘copycat’ manner, often lacking any supporting evidence or formal structure for evaluation of the tool’s effectiveness (Bogomolova et al., 2017). Accordingly, there is a need to systematically document current industry practices and patterns in catalogue content, layout, and formats. Without this knowledge of typical practices, retailers could be making decisions based on guesswork, which could result in a waste of time, money, and resources.

The overarching objective of this study is to synthesize the current industry practice of supermarket catalogue composition and identify the main trends related to content, composition, format, and layout, while also comparing the results across countries. This study uses the content analysis method to provide an international comparison of the composition of 39 catalogues from 13 supermarket chains across five countries. The coding scheme and variables are developed by the lead author based on the key design elements in print advertisement: pictorial elements, promotion elements, and text elements (Pieters & Wedel, 2004; Pieters et al., 2007).

The contribution of this study is in providing evidence-based knowledge regarding the most common practices in supermarket catalogue production. For academics, this work provides a generalizable quantitative benchmark of supermarket catalogue content in terms of composition, format, and layout. Generally, catalogue production is a collaboration among various stakeholders: the manufacturers (who want to sell their products), the supermarket’s category managers (who decide on which products to promote and their prices), and the marketing manager/advertising agency (who decides on the look, feel, and flow of the catalogue). For retailers and manufacturers, understanding the current industry practices in supermarket catalogues across different chains and countries could help them create better catalogue promotions, which would increase consumer readership and, in turn, sales levels. For advertising agencies, a better understanding of the current practices would help them build a better relationship and collaboration with category/marketing managers, which would optimize the catalogue production process.

Background and Research Questions

Supermarket catalogues

Catalogues are one of the key advertising and sales promotional tools for retailers and manufacturers worldwide. For example, in the United States, 75% of category shoppers rely on catalogues to pre-plan their shopping trip before heading to the store, while 87% stated that catalogues have influenced their store choice (Nielsen, 2011). Similarly, Australian consumers ranked catalogues as one of the most informative and useful media when making purchase decisions (Roy Morgan, 2017). Australians find catalogues to be most useful when purchasing groceries (45%), followed by alcoholic beverages at 39% and selecting children's wear at 33% (Roy Morgan, 2017a).

Despite the digital and technology revolution surrounding the retail industry, catalogues still have the greatest reach across all promotion media channels (Nielsen, 2017). About 80% of American households still use catalogues for product information: 85% of Americans read the catalogues that were mailed to their home, while 79% obtain their catalogue in-store (Nielsen, 2017). In Australia, 55% of primary grocery buyers have made a purchase after reading a catalogue in the last seven days (The Real Media Collective, 2018). Catalogues have been reported to reach 20.1 million Australians every week and have the highest reported reach compared to other print media, such as newspapers (16.8 million) and magazines (12.5 million) (Australasian Catalogue Association, 2017). Catalogues remain relevant and useful for consumers, as print catalogues are the second (after supermarket emails) most useful way for consumers to find supermarket promotions (Inside FMCG, 2021).

The next sections discuss the theory behind how consumers are likely to process the information presented in catalogues.

Consumer gaze theory

To process information in print media, such as a newspaper, a magazine, or a catalogue, consumers must direct their eyes to it and cast their attention as they read. That is, where consumers look is what they are paying attention to. Eye movements for information processing have been conceptualized as two processes: bottom-up and top-down (Orquin & Loose, 2013). The bottom-up process is when a visual element captures the consumer's attention, and thus their eyes are involuntarily drawn to it; for example, when the consumer is drawn towards an image of a pasta sauce on a catalogue page ("Oh look, there's a price discount for pasta sauce this week"). On the other hand, the top-down process is a goal-driven and information-seeking behaviour; for example, when a consumer wants to find out the price and discount depth for their favourite pasta sauce ("I want to know what the price for my pasta sauce is this week at this retailer"). So, it is conceivable that both processes (bottom-up and top-down) are present when a consumer engages with a catalogue.

According to a review of eye-tracking research by Wedel and Pieters (2015), consumers' first eye fixation upon an object in a scene, such as an ad in a catalogue, stems from its perceptual features. The basic perceptual features include colour, edges, shape, and size. Understanding what attracts and retains a consumer's gaze and attention is crucial to creating a successful ad. There are several elements that could help or hinder consumers' attention towards an ad, such as the complexity of the visual environment, the spatial location of the elements, and the size of the object or area of interest (for reviews, see Orquin et al., 2018; Rayner, 2009; Wedel & Pieters, 2015). Each of these elements is discussed below.

In terms of the complexity of the visual environment, Pieters et al. (2010) found that ads with complex features (i.e., those that are more detailed and colourful) decrease consumers' attention towards the brand and ad, whereas ads with a complex design (more intricate layout and design) increase attention to the ad as a whole and improve ad comprehensibility. Furthermore, increasing the target ad's distinctiveness increases the consumer's attention and engagement levels, but if all the ads on the page are to be distinctive, this will increase distractor heterogeneity and hamper visual selection (Pieters et al., 2007). Therefore, when designing an ad, retail managers should also consider how the ad looks in contrast with its surroundings. This is particularly relevant in a catalogue, which by design contains a great deal of competitor information in a small space, and typically uses many bright colours for imagery and text communication.

In terms of spatial location, Coulter and Norberg (2009) investigated whether physical distance between two prices would influence the consumer's perception of numerical difference. Their results showed that there is a positive relationship between physical distance and perceived relative numerical difference. The findings also showed that reinforcement of the perceived numerical difference caused consumers to overestimate the discount value and increase purchase likelihood. Understanding how consumers evaluate and compare prices is also important as it influences whether the promotion is perceived as favourable or not. A study by Choi and Coulter (2012) showed that consumers made comparisons in absolute terms for prices in horizontal display format, whereas prices were compared in relative terms when displayed vertically. An eye-tracking study revealed that consumers fixate more on the unit price information if the unit price label design is enhanced (i.e., placing unit price information close to the main price, in a sufficiently large font and coloured background) (Bogomolova et al., 2020). Therefore, how the retail managers frame and place their ad and display price information would greatly affect how consumers process catalogue information.

In terms of the size of the object, Pieters and Wedel (2004) showed that a 1% increase in text surface size increases a consumer's attention selection by 0.05% and duration by 0.16%. Regarding the size of the area of interest, Pieters et al. (2007) found that the total surface size of an ad has a significant impact on consumer attention: with every 1% increase in size, the

odds ratio of attention selection and engagement increase by 0.57% and 0.22% respectively. When designing an ad for a catalogue, the size of the object could signal to consumers the importance of the information, hence attracting their attention.

In summary, managers must make numerous design and layout decisions during catalogue production, and those decisions (which often include negotiations and lead to cost implications) could influence consumer attention, the processing of the ad in the catalogue, and, ultimately, purchase (or lack thereof). These considerations validate our proposal that viewing catalogues from the perspective of visual media is an important contribution to academic and practitioner knowledge.

Content analysis of catalogues

Scholars have analysed supermarket catalogue content (Charlton et al., 2015; Johnston et al., 2017; Cameron et al., 2015; Jahns et al., 2014), but largely from a product healthfulness perspective. Little attention has been given to the brands promoted and to details such as the number of items advertised, the location of the item on the page, the average discount depth per category, and the framing of promotions. These factors are important for retailers and manufacturers, as the results could impact sales levels (either at store level or brand level).

A few studies have analysed catalogue content, but these focused only on the first page of the catalogue (Martin-Biggers et al., 2013; Ethan et al., 2014). Other studies have analysed the entire catalogue, but the focus was still on the healthiness of advertised food, such as the seasonal variation of fruits and vegetables (Jahns et al., 2014) or the proportion of food advertised according to national dietary guidelines (Cameron et al., 2015). Variations in the framing of promotions across the entire catalogue have also been analysed, but the product category was limited to alcohol (Johnston et al., 2017). The only study to analyse supermarket catalogue content at the international level was carried out by Charlton et al. (2015), albeit their focus was still confined to the health perspective.

The size and pagination of each catalogue may differ from one supermarket chain to the other, and from one country to another. One of the many functions of a catalogue is for retailers to showcase the range of products sold in-store. Consumers use the number of brands featured in catalogues as a salient cue to infer the retailer's product range (Chaabane et al., 2010). Moreover, the perceived product range has a positive effect on consumers' intention to visit and purchase from the store (Chaabane et al., 2010). The difference in catalogue content and prevalence of each promotion type would most likely be driven by the retailer's decisions and their positioning, rather than the country or culture. For example, within the same country there are retailers who focus on delivering low-cost and value products, and hence they focus on particular types of promotion

techniques (e.g., bundles, heavy discounts), while more premium retailers might focus on promoting other attributes (e.g., locally grown produce, premium quality, etc.). Previous studies (Zhou & Nakamoto, 2001; Meng & Nasco, 2009) have found that value and quality are perceived equally across cultures, be it emerging vs. developed markets or Western vs. Asian countries. To the best of our knowledge, there is no academic documentation of the reasons behind the promotion prevalence in different countries.

This study aims to fill this gap by systematically documenting current industry practices in catalogue production across supermarket chains and countries. For example, the number of promoted items and pages, the duration of promotion, and the ad size. Therefore, research questions 1a, 1b, 1c, and 1d examine the overall features of catalogues, and research question 1e investigates any differences across countries:

RQ1a: What is the average number of pages in a supermarket catalogue?

RQ1b: What is the average duration of catalogue promotion?

RQ1c: What is the average number of items within the entire catalogue, and per page?

RQ1d: What is the prevalence of the different ad sizes in the catalogue?

RQ1e: What are the differences among countries?

Key design elements

Advertisements in print media, such as magazines or newspapers, generally contain five key design elements (Pieters & Wedel, 2004; Pieters et al., 2007): (1) promotion elements, which are any promotional discount information (textual or numeric) of the promoted item; (2) price elements, which encompass the price and numeric information of the promoted item; (3) text elements, comprising all textual information, such as descriptions of the item; (4) brand elements, which are any brand identity and visual cues of the promoted item, such as the brand name or logo; and (5) pictorial elements, which are all non-textual information, such as pictures.

Looking at supermarket catalogues, which generally promote a range of product offers, Pentus et al. (2018) clustered the aforementioned elements into several principal elements: *numerical* elements (e.g., discount percentage, before and after price, product size), *typographic* elements (e.g., brand name, product description), and *graphical* elements (e.g., images of the product). Each element has various effects on grabbing a reader's attention. Pieters et al. (2007) stated that the pictorial or graphical element is the most dominant variable in a grabbing reader's attention, which was measured as the percentage of readers who fixated on a particular product feature at least

once. This is similar to a common practice in the advertising industry, whereby the graphical or pictorial elements, rather than the typographic ones, are used as the focal point to attract a consumer's gaze.

A consumer's gaze for catalogues should be similar to that for print media. Wedel and Pieters (2000) found that the frequency of a consumer's gaze fixation on brand element is lower than pictorial and text elements. Results showed that the size of a brand element is smaller than that of pictorial elements (about 10 times) and text elements (about 3-5 times). Another study also found that the pictorial element is the most efficient in capturing a consumer's attention (Pieters, 2000).

Promotion elements

Promotion information can be communicated to consumers in various ways; for example, percentage off (e.g., '20% off', 'half-price'), dollars off (e.g., '\$5 off'), bundling/multiple unit promotion (e.g., '3 for \$10'), or everyday low-price deals (e.g., '\$7 every day') (Bogomolova et al., 2015; Bogomolova & Dunn, 2012). Promotions can also be conveyed without a price point, such as newly launched products/variants (e.g., 'New Product', 'New Flavour') or as part of a competition campaign (e.g., 'Buy me to enter the sweepstake'). Descriptive studies documenting retailers' price promotion strategies found that the industry practices are complex and varied based on brands and categories (Bogomolova et al., 2017; Bolton & Shankar, 2003; Dhar et al., 2001; Fader & Lodish, 1990; Shankar & Bolton, 2004). Categories with higher penetration and purchase frequency are usually favoured to have discounts and receive deal support, such as feature advertising and additional displays (Fader & Lodish, 1990).

Generally, the most important story will headline the newspaper's front page, because the first page is what grabs a consumer's attention (Kim & Chung, 2017). Editors have devoted significant time and resources in selecting the story and designing the elements that are placed on the most prized page of their publication (Kim & Chung, 2017; McQuail, 2010). In that respect, the supermarket catalogue's front page might be a more premium ad placement area, compared to the back page, and could feature deeper discounts in order to attract consumers into the store or promote frequently purchased products. Furthermore, there have been conflicting findings regarding which side (left vs. right of the page) of the ad location receives higher visual attention. Studies have found that consumers fixate more on the right (rather than left) of the page (Rosbergen et al., 1997; Simola et al., 2013). On the other hand, it has been shown that ads on the left are recognized more accurately than those on the right (Goodrich, 2010; Janiszewski, 1993), partly because Western reading is predominantly carried out from left to right and top to bottom.

In terms of the products advertised, private label brands are of strategic importance to supermarkets. Retailers favour private labels due to high profit margins, to portray a low-price

brand image, and to increase consumers' brand choices (Kumar & Steenkamp, 2007). However, to increase consumers' acceptance of private labels is a constant uphill battle for retailers.

Consumers mainly reject private labels due to low perceived quality and lack of brand trust (Beneke & Carter, 2015; Nenycz-Thiel & Romaniuk, 2011). Thus, retailers might (or might not) opt to promote private labels. In the United Kingdom, there is a higher prevalence of price promotions in national brands (36%) as compared to private labels (18%) (Bogomolova et al., 2015).

Therefore, the prevalence of private labels in supermarket catalogues is likely to differ across countries.

To the best of our knowledge, no research has examined the variation in price promotion framing between product categories within a catalogue. The difficulty in obtaining data contributes to this research gap, as catalogue promotions are not recorded in the retailer's sales transaction logs.

The data must be collected at the time of catalogue release, coded, and then systematically analysed. Hence, Research Questions 2a, 2b, 2c, and 2d examine the discount depth and prevalence of the deal types. Documenting such information would help shed light on the key decisions that supermarket managers must make when designing catalogues; for example, the trade-off in ad income for featuring a full-page ad versus multiple smaller ads.

RQ2a: What is the prevalence of price discount and different price promotion framing techniques in supermarket catalogues?

RQ2b: What is the average discount depth?

RQ2c: How do promotion framing and discount depth differ across product categories, ad size, and ad location in a catalogue?

RQ2d: How does the promotion depth differ between front page and back page?

RQ2e: How does the promotion depth differ between private labels and national brands?

Pictorial and text elements

Promoted items are generally listed in catalogues by showcasing a pack-shot or image of the product. Products can also be highlighted using the pictorial and text elements in a catalogue; for example, the country or origin (e.g., 'Product of the U.S.A.'), the region of origin (e.g., 'Locally Grown'), product health claims (e.g., 'Organic'), and other qualities (e.g., 'USDA choice'). When food or products are promoted with a quality attribute label, they are often perceived to be safer, of higher quality, evaluated more positively, and preferred more than imported or non-labelled products (for a literature review, see Newman et al., 2014).

Consumers have also used country-of-origin labels as a cue when purchasing or evaluating products (McCarthy et al., 2006; Kaynak et al., 2000; Chu et al., 2010). Studies have even found that consumers believe a country-of-origin label is more important than brand labels (Roosen et al., 2003; Bernués et al., 2003; Smith, & Middleton, 2008). Furthermore, consumers are sometimes willing to pay a premium for products with a country-of-origin label, such as a 5% increase for domestic pork in France, Denmark, Sweden, and the United Kingdom (Dransfield et al., 2005), a premium of 19% for US beef in the United States (Umberger et al., 2003), and even up to 66% for local regional rice in Japan (Peterson & Yoshida, 2004).

Health claims are also frequently displayed on product packaging and within supermarket settings (Pulker et al., 2018; Theben et al., 2020). For example, products may claim to be low-sugar, fat free, high protein, among other attributes, while supermarkets may also promote healthy products with shelf-talkers/wobblers. Nikolova and Inman's 2015 study found that implementing a nutrition scoring system (i.e., traffic light system or the NuVal score) improved consumers' food choices significantly, as the nutrition information was summarized in a comprehensive and easy-to-understand manner.

Therefore, retailers typically place these claims to highlight the quality attribute alongside the promoted item in the catalogue. However, no research has investigated the prevalence of these quality attribute claims in catalogues. This research gap could be due to the fact that these claims are generally found on the packaging rather than in out-of-store promotional materials. Uncovering how often these quality attribute claims appear in catalogues could indicate the importance of such claims when designing catalogues, as well as highlighting the differences across countries. The final research question addresses this issue:

RQ3: What other information or claims are presented alongside the promoted items?

Research Method

This study uses a content analysis method to analyse supermarket catalogue content. Content analysis is defined as a systematic and objective way to quantitatively describe the contents of communications, with the aim of providing new insights, a representation of facts, and a guide to action (Kassarjian, 1977; Krippendorff, 1980; Neuendorf, 2002). Thus, content analysis can help identify patterns when analysing advertising or marketing promotions. Content analysis has been widely used to analyse catalogues, largely from a health prevention perspective (Charlton et al., 2015); to compare the catalogue content with the *Australian Guide to Healthy Eating* (Cameron et al., 2015); to examine the proportion of advertised foods with the *MyPlate* food system (Jahns et al., 2014); and to review alcohol promotions to inform public policy approaches (Johnston et al.,

2017). Content analysis has also been used for other media, such as magazines (Al-Olayan & Karande, 2000; Belch & Belch, 2013), television (Allan, 2008; Ji & McNeal, 2001; Lewis & Hill, 1998), and even social media (Parsons, 2013; Waters & Jones, 2011).

Based on the scope of this study (i.e., supermarkets) the authors selected mainstream supermarkets (e.g., Woolworths – Australia, Kroger – USA) and excluded discount stores and wholesalers (e.g., Walmart, Costco) to ensure fair comparison among stores. Online versions of supermarket catalogues were accessed from the supermarket website and downloaded as PDFs for analysis. Past research found some, albeit insignificant, state-level differences across the Australian supermarket catalogues due to the availability of the products in each state (Charlton et al., 2015). Therefore, two-week periods of the catalogues prior to the study were assessed. As the authors reside in Australia, this could only be done for the two leading grocery market retailers in Australia: Coles and Woolworths. This allowed the authors to confidently state that the catalogues are identical nationwide and across different channels (print copies vs. online).

To ensure that the results are generalizable, catalogues from 13 supermarket chains from five countries were collected over an eight-week period from September to October 2018. Supermarket chains with a large market share and with online availability of their catalogues were chosen for this study. The five countries selected for this study were chosen to represent emerging vs. developed markets. The market share of each supermarket was identified based on the Euromonitor Passport database (Passport, 2018) (see Table 9). The small market share in Malaysia and the US is due to the highly fragmented retail industry in these countries, where the respective market shares of the chosen retailers are considered 'large' relative to their country's benchmark. If prompted for location, catalogues from the major city where the retailer was operating was chosen for analysis; otherwise the catalogue promotion was applicable nationwide. The dataset comprised Australia (Woolworths, Coles, Foodland), Malaysia (Giant, Tesco), New Zealand (Countdown, Four Square, New World), South Africa (Pick 'n' Pay, Shoprite), and the United States (Kroger, Meijer, Publix). Three catalogues were downloaded from each supermarket in order to analyse their content. In total, 39 catalogues were analysed.

Table 9 Supermarkets' Market Share

| Country | Supermarket Chain | Location | Market Share (%)* |
|--------------|-------------------|---------------------|-------------------|
| Australia | Woolworths | Adelaide | 27 |
| | Coles | Adelaide | 26 |
| | Foodland | Adelaide | 7 |
| Malaysia | Giant | Peninsular Malaysia | 2 |
| | Tesco | National | 1 |
| New Zealand | Countdown | North Island | 23 |
| | New World | Auckland | 14 |
| | Four Square | Auckland | 4 |
| South Africa | Pick 'n' Pay | Cape Town | 13 |

| | | | |
|---------------|----------|-----------|----|
| | Shoprite | Cape Town | 12 |
| United States | Kroger | Virginia | 4 |
| | Publix | Florida | 3 |
| | Meijer | National | 2 |

* 2017 market share retrieved from the Euromonitor Passport database (Passport, 2018)

In a pre-test, the authors also examined catalogues from Woolworths, Australia’s leading grocery retailer (Passport, 2018), for six weeks (25 July 2018 – 11 September 2018). The pre-test results showed that the average discount depth was 34%, with an average of 281 items promoted in a catalogue. The ratio of national brands to private labels was 83% to 17%, with national brands offering deeper discount of 35%, compared to private labels at 20%. The most prevalent promotion framing was dollars-off. 54% of the promoted items were in small format. After analysing three weeks’ worth of catalogues, the patterns in the results reached a saturation point, where there were no further changes in catalogue layout, design, or contents observed. Thus, the authors can confidently say that three weeks’ worth of catalogues of a supermarket chain is sufficient for the main analysis. The method and categories that the authors adopted were robust and instilled confidence in moving forward with the full analysis.

To ensure uniformity and accuracy in data collection, a detailed coding scheme (see Appendix E) was created, and data collectors were trained and participated in practice sessions. Each catalogue page was divided into a 3x3 grid. The size of the item was determined by the number of grids it occupied on the page: small (less than 1 of column and row grids); medium (1 to 2 of the column and row grids); large (2 or more of the column and row grids). Two coders independently coded each catalogue to ensure intercoder reliability. After the content of Australian and US catalogues had been coded, the results were compared in order to establish intercoder reliability. SPSS 26 software was used to obtain the Cohen’s kappa value by analysing the cross-tabulation of a promotion element; for example, the results of the ad size from Coder 1 against those from Coder 2’s. This was repeated for each promotion element, such as ad position, product category, discount depth, attribute claims, and promotions framing. On average, the Cohen’s kappa value was 0.64, which is an acceptable agreement level as it is interpreted as ‘substantial agreement’ (Landis & Koch, 1977). Any discrepancies in coding the variables were reviewed and resolved by the main author to achieve unanimous agreement. Each coder analysed the catalogue and entered the data into a Microsoft Excel spreadsheet. Google Translate was also used to translate foreign language catalogues into English. Examples of coded items are found in Appendix F.

Analysis

Results of the descriptive analysis were reported using means (M), standard deviations (SD), and coefficient of variation (CV). Coefficient of variation is a standardized measure of the dispersion of

data points, that is, a measure of relative variability, calculated by dividing SD by M. The variations between supermarket catalogues and countries were determined using the coefficient of variation, whereby a CV value of more than or equal to one indicates a relatively high variation, while a CV value of less than one indicates low variation.

Results

Catalogue features

Table 10 summarizes the catalogue features in each country. Addressing RQ1a, the average number of pages in a catalogue was 22. Catalogues contained an average of 237 items spread across 22 pages, with Australia having the highest number of pages and items (36 pages promoting 279 items). Addressing RQ1b, the average catalogue promotion was valid for eight days, with Malaysia having the longest validity of 14 days. Australia, New Zealand, and the United States had the same promotion length of seven days. For the response to RQ1c, there was an average number of 237 products in a catalogue, while 13 items were featured on a catalogue page. The United States catalogue contained the highest number of private labels, while only 11% of the items in Australian catalogue were private labels.

Table 10 Supermarket Catalogue Summary by Country

| | Australia | Malaysia | New Zealand | South Africa | United States |
|----------------------------------|-----------|----------|-------------|--------------|---------------|
| Length of promotion (days) | 7 | 14 | 7 | 9 | 7 |
| Number of pages | 36 | 21 | 23 | 8 | 15 |
| Number of promoted items | 279 | 275 | 223 | 122 | 260 |
| Number of items per page | 8 | 14 | 10 | 15 | 18 |
| Percentage of private labels (%) | 11 | 20 | 23 | 26 | 27 |

Promotion elements

Table 11 summarizes the prevalence of the promoted item's ad size across each country. Addressing RQ1d, on most occasions, items were featured in small format (M=41%, SD=14%, CV=0.3), followed by medium format (M=18%, SD=8.8%, CV=0.5), and then as a half-page feature (M=13%, SD=6.9%, CV=0.5). A chi-square test showed that there is a statistical difference between item size across countries, with $\chi^2(24, N = 499) = 87.52, p < .00$. Small ads were the most commonly used ad size, except for South Africa. Products were rarely displayed in a column (M=3%, SD=2.7%, CV=0.8) or row format (M=7%, SD=5.4%, CV=0.8).

Products featured in catalogues might not always indicate a savings amount. Approximately 41% of all items did not display any savings amount, with New Zealand catalogues having the highest number of items without any savings (M=74%, SD=25%, CV=1.8) (see Table 11). A chi-square test

showed that there is a statistical difference: $\chi^2 (4, N = 207) = 59.80, p < .00$. Comparing across countries, 27% of the items were dollars-off discounts, while 11% were bundling or multi-buy promotion. The least utilized promotion framings were everyday-low-price promotions (3%), new product/variant launches (2%), and exclusivity (0%). Looking at items with any promotion framing, about 60% (SD=9.3%, CV=0.2) of Australian and 27% (SD=25%, CV=0.9) of South African catalogue items used the dollars-off promotion type, while Malaysian catalogues commonly used more of the competitions/prizes type (M=21%, SD=13%, CV=0.6). Catalogues in the United States featured items in the bundling and multi-buy format (M=33%, SD=12%, CV=0.4). A chi-square test showed that there is a statistical difference between the promotion framing across the countries: $\chi^2 (28, N = 501) = 241.05, p < .00$. Table 3 answers RQ2a: What is the prevalence of price discount and different price promotion framing techniques?

Table 11 Prevalence of Promoted Item's Size and Promotion Framing (%) by Country

| | Australia | Malaysia | New Zealand | South Africa | United States | Overall |
|---------------------------|-----------|----------|-------------|--------------|---------------|---------|
| ITEM SIZE: | | | | | | |
| Small | 48 | 55 | 35 | 20 | 50 | 41 |
| Medium | 16 | 5 | 29 | 16 | 22 | 18 |
| Large | 5 | 13 | 9 | 7 | 9 | 9 |
| Half Page | 14 | 14 | 10 | 23 | 4 | 13 |
| Full Page | 7 | 9 | 10 | 14 | 5 | 9 |
| Column | 2 | - | 3 | 5 | 7 | 3 |
| Row | 9 | 3 | 4 | 15 | 2 | 7 |
| PROMOTION FRAMING: | | | | | | |
| No Price Discounts | 7 | 51 | 74 | 45 | 30 | 41 |
| Dollars Off | 60 | 19 | 6 | 27 | 24 | 27 |
| Bundling/Multiple Unit | 2 | 5 | 6 | 9 | 33 | 11 |
| Competitions/Prizes | 3 | 22 | 2 | 11 | 6 | 9 |
| Percentage Off | 15 | 1 | 4 | 3 | 6 | 6 |
| Everyday Low-Price | 9 | - | 4 | 3 | 1 | 3 |
| New Product/Variant | 3 | 2 | 3 | 2 | 1 | 2 |
| Exclusivity | 0.3 | 1 | 1 | - | - | 0 |

Addressing RQ2b, the depth of discount when the items displayed a savings was 26% on average. Australia offered the deepest discount of 32% (SD=1.6%, CV=0), while Malaysia had the shallowest discount depth of 20% (SD=1%, CV=0) (see Table 12). The results showed that items featured as a percentage-off promotion offered the deepest discount of 41%. Interestingly, dollars-off promotions, bundling/multi-buy, everyday-low-price, and competition promotions offered a similar discount depth of 26%. Moreover, everyday-low-price and new product/variant promotions offered the same average discount of 24%. A chi-square test showed that there is a statistical difference in discount depth between the promotion framing across countries: $\chi^2 (24, N = 706) = 194.98, p < .00$.

The Australia, Malaysia, New Zealand, and South Africa catalogues offered the deepest discounts when using the percentage-off promotion framing. On the other hand, items in the United States catalogue had the deepest discount when displayed in the bundling and multi-buy format. In the Malaysia, South Africa, and the United States catalogues, there were no savings displayed when using the everyday-low-price format.

The price discount displayed in catalogues also differed by product categories, as shown in Table 12. Across countries, household items offered the deepest discount of 30%, followed by health and beauty items with a 28% discount. The shallowest discount depth was offered by alcohol (18% discount) and pet care (19% discount). In New Zealand, the deepest discount of 50% was found in fruit/vegetable and bread/bakery items. In the United States, fruit/vegetable and frozen items offered the deepest discount (29%), while in South Africa, baby care products offered the deepest discount ($M=32\%$, $SD=10\%$, $CV=0.3$). A chi-square test showed that there is a statistical difference in the discount depth between the product categories across countries: $\chi^2(44, N = 1451) = 100.54$, $p < .00$.

It may be assumed that manufacturers would opt for more prominent catalogue placement (e.g., full-page ads) for items at a deeper discount, to ensure that it catches the reader's attention and increases their purchase likelihood. However, across all five countries, half-page ads offered a deeper discount than full-page ads (32% discount vs. 28% discount respectively) (see Table 12). The shallowest discount were for items featured in small size format (24% discount). In Malaysia, items displayed in a row format had the deepest discount ($M=39\%$, $SD=0\%$, $CV=0$). In South Africa, medium size format items featured the deepest discount (26%, $SD=8.2\%$, $CV=0.3$). A chi-square test showed that there is a statistical difference in discount depth between the ad size across countries: $\chi^2(24, N = 836) = 56.93$, $p < .00$.

Items displayed as a row format at the top of the page offered the deepest discount of 31% ($SD=17\%$, $CV=0.5$). On the other hand, row-formatted items at the bottom of the page gave the shallowest discount of 14% ($SD=5.7\%$, $CV=0.4$). A chi-square test showed that there is a statistical difference in discount depth between the ad location across countries: $\chi^2(56, N = 1383) = 209.92$, $p < .00$.

Interestingly, in Australian catalogues, items in row format displayed in the middle of the page offered an average discount of 52%. In New Zealand and the United States, the cheapest items were found at the top right and bottom left of the page. In South Africa, the deepest discounted items were found at the middle bottom section of the page ($M=30\%$, $SD=11\%$, $CV=0.4$).

Addressing RQ2d, the front and back page had the same average discount depth of 31%. In Australia and South Africa, items on the front and back page displayed a similar discount depth: the Australian front/back page offered a 45% discount, while the South African front/back page

offered a 22% discount. In Malaysia, New Zealand, and United States, the front page offered a higher discount depth than the back page: Malaysia (37% vs. 31% discount), New Zealand (21% vs. 0% discount), and the United States (30% vs. 25% discount). A chi-square test showed that there is a statistical difference in discount depth between the promotion framing across countries: $\chi^2 (8, N = 404) = 16.25, p < .00$.

Addressing RQ2e, the average discount depth of private labels was only marginally lower than national brands (26% discount vs. 25% discount by national brands). However, in Malaysia and the United States, private labels had slightly deeper discounts than national brands. Malaysian private labels offered a 29% discount (SD=5.3%, CV=0.2) as compared to national brands 19% (SD=0.9%, CV=0), whereas in the United States, private labels offered a 25% discount (SD=1.7%, CV=0.1) as compared to national brands 23% (SD=4.4%, CV=0.2). A chi-square test showed that there is a statistical difference in discount depth between national brand and private label across countries: $\chi^2 (4, N = 253) = 6.56, p < .00$.

Table 12 Average Discount Depth (%) Across Promotion Framing by Country

| | Australia | Malaysia | New Zealand | South Africa | United States | Overall |
|--------------------------|-----------|----------|-------------|--------------|---------------|---------|
| PROMOTION FRAMING | | | | | | |
| Percentage Off | 48 | 39 | 51 | 41 | 24 | 41 |
| Dollars Off | 33 | 20 | 31 | 24 | 23 | 26 |
| Bundling/Multiple Unit | 24 | 19 | 29 | 30 | 28 | 26 |
| Everyday Low-Price | 23 | - | 29 | - | - | 26 |
| Competitions/Prizes | 35 | 22 | - | 21 | 24 | 26 |
| Exclusivity | 31 | 17 | - | - | - | 24 |
| New Product/Variant | 35 | 21 | - | 18 | 20 | 24 |
| Overall/Average | 32 | 20 | 31 | 24 | 23 | 26 |
| PRODUCT CATEGORY: | | | | | | |
| Household | 40 | 28 | 30 | 30 | 22 | 30 |
| Health & Beauty | 38 | 21 | 34 | 28 | 21 | 28 |
| Fruit & Vegetable | 14 | 16 | 50 | 26 | 29 | 27 |
| Pantry | 34 | 16 | 34 | 22 | 28 | 27 |
| Frozen | 32 | 18 | 30 | 25 | 29 | 27 |
| Bread & Bakery | 32 | 12 | 50 | 16 | 19 | 26 |
| Baby Care | 26 | 16 | 25 | 32 | 26 | 25 |
| Drinks | 35 | 18 | 30 | 16 | 24 | 25 |
| Dairy, Eggs & Fridge | 26 | 22 | 25 | 20 | 25 | 24 |
| Meat, Seafood & Deli | 21 | 17 | 28 | 22 | 24 | 22 |
| Pet Care | 29 | 15 | 21 | 19 | 12 | 19 |
| Liquor | 26 | - | - | 15 | 12 | 18 |
| AD SIZE: | | | | | | |
| Half Page | 40 | 27 | 36 | 24 | 28 | 32 |
| Row | 31 | 39 | 29 | 21 | 21 | 28 |

| | | | | | | |
|---------------------|----|----|----|----|----|----|
| Full Page | 38 | 23 | 33 | 20 | 26 | 28 |
| Column | 31 | - | - | - | 21 | 26 |
| Large | 34 | 20 | 27 | 23 | 24 | 26 |
| Medium | 32 | 21 | 23 | 26 | 23 | 25 |
| Small | 28 | 20 | - | 22 | 25 | 24 |
| AD LOCATION: | | | | | | |
| Top Row | 37 | 49 | 29 | 21 | 19 | 31 |
| Middle Row | 52 | - | - | 22 | 23 | 32 |
| Bottom Row | 19 | 8 | - | 16 | - | 14 |
| Left Column | 30 | - | - | - | 17 | 24 |
| Middle Column | - | - | - | - | - | - |
| Right Column | 33 | - | - | - | 23 | 28 |
| Left Top | 33 | 19 | 17 | 23 | 22 | 23 |
| Left Middle | 29 | 20 | - | 24 | 21 | 24 |
| Left Bottom | 28 | 20 | 34 | 21 | 27 | 26 |
| Middle Top | 37 | 20 | 25 | 21 | 26 | 26 |
| Middle | 29 | 19 | - | 26 | 22 | 24 |
| Middle Bottom | 26 | 17 | 6 | 30 | 20 | 20 |
| Right Top | 32 | 21 | 34 | 26 | 27 | 28 |
| Right Middle | 27 | 20 | - | 20 | 26 | 23 |
| Right Bottom | 27 | 19 | - | 23 | 21 | 23 |
| Front Page | 46 | 37 | 21 | 22 | 30 | 31 |
| Back Page | 45 | 31 | - | 22 | 25 | 31 |
| Inside Catalogue | 32 | 19 | 25 | 25 | 24 | 25 |

*- is when there is no discount shown in catalogue

Pictorial and text elements

Table 13 illustrates the prevalence and discount depth of the attribute claims that accompany promoted items across countries. The results showed that 52% of the catalogue items were featured alongside an image or words. Australian and New Zealand catalogues placed more emphasis on the importance of country and/or region of origin, as compared to Malaysia, South Africa, and the United States. In Australia, 22% of items had country-of-origin claims, and 11% of items had region-of-origin claims. A chi-square test showed that there is a statistical difference between attribute claims across countries: $X^2(28, N = 502) = 231.74, p < .00$. Interestingly, region-of-origin claims offered a deeper discount than country-of-origin claims (25% vs. 16% discount respectively). In New Zealand catalogues, 32% of items had country-of-origin claims, but no region-of-origin claims, though neither of these claims displayed a price discount. The least utilized claim was animal welfare, with only 1% of the items displaying such claims. Animal welfare claims offered the least discount depth of 12%. A chi-square test showed that there is a statistical difference in discount depth between the attribute claims across countries: $X^2(28, N = 485) = 219.03, p < .00$.

Examining the artwork/images more closely revealed patterns in some of the countries. For example, in Malaysian catalogues, the artwork generally featured celebrities or brand ambassadors alongside the product. In the United States, the artwork showed serving suggestions and recipes. South African catalogues typically used “As Seen on TV”. Table 13 answers RQ3: What other information or claims are presented alongside the promoted item?

Table 13 *Prevalence of Attribute Claims (%) by Country*

| | Australia | Malaysia | New Zealand | South Africa | United States | Overall |
|-----------------------------|------------------|-----------------|--------------------|---------------------|----------------------|----------------|
| PREVALENCE: | | | | | | |
| Accompanying Images/Words | 46 | 48 | 41 | 43 | 81 | 52 |
| Other | 5 | 21 | 14 | 21 | 9 | 14 |
| Country of Origin | 22 | 1 | 32 | 1 | 0 | 11 |
| Unit Pricing/Sizes | 12 | 7 | 5 | 25 | 3 | 10 |
| Quality Attributes | 2 | 11 | 7 | 9 | 5 | 7 |
| Satisfaction Rating/Reviews | 2 | 13 | 0 | 0 | - | 3 |
| Region of Origin | 11 | - | - | 0 | 1 | 2 |
| Animal Welfare | 3 | - | 1 | 0 | - | 1 |
| DISCOUNT DEPTH: | | | | | | |
| Satisfaction Rating/Reviews | 43 | 16 | - | - | - | 30 |
| Unit Pricing/Sizes | 29 | 29 | 25 | 21 | - | 26 |
| Region of Origin | 25 | - | - | - | - | 25 |
| Accompanying Images/Words | 28 | 23 | 23 | 21 | 22 | 23 |
| Other | 18 | 22 | - | 21 | - | 20 |
| Quality Attributes | 19 | 3 | - | 23 | 31 | 19 |
| Country of Origin | 14 | - | - | 17 | - | 16 |
| Animal Welfare | 12 | - | - | - | - | 12 |

Discussion

This research provides an international comparison of catalogue promotions from 13 supermarket chains in five countries. The international scope of this study and the standardized assessment method provide an overview of supermarket industry practices in catalogue promotions and benchmarks among countries.

Overall Catalogue Promotions

Generally, a supermarket catalogue promotion was valid for eight days, which is similar to other countries such as Canada, Hong Kong, India, Singapore, Sweden, and the United Kingdom (Charlton et al., 2015). Our study found that catalogues, on average, promoted 237 items across 22 pages, so each page featured an average of 13 products.

Front versus Back Page

Retailers often place more emphasis and invest more resources on promotions featured on the front and back pages of catalogues. This is due to the belief that the front and back pages have higher *opportunity to see* compared to the inside pages, which in turn might drive readers into stores. Our study found that indeed promotions on the front and back pages had deeper discounts, as compared to the inside of the catalogue. This finding suggests that retailers treat catalogues in a similar manner to print media (e.g., newspapers and magazines), whereby the premium advertising spots are placed on the front and back pages (Kim & Chung, 2017). This echoes the point that catalogue could, and can, be viewed as promotion media, rather than a mere price discount tool. Pentus et al. (2018) found that the first page of a catalogue received significantly higher attention than other pages. Deeper discounts and promotions can be negotiated with manufacturers for front-page placement, as it is the first page that readers look at (the back page would be read first if the catalogue were placed the other way down). So, if consumers did not read the full catalogue, the front and back pages would have higher visual reach (i.e., opportunity to see).

Prevalence of Promotions

It is interesting to note that, on average, 41% of the products in a catalogue did not indicate any discounts or monetary savings. This is most prevalent in New Zealand, as 74% of the products did not indicate any discount, followed by Malaysia (51%). The lack of promotions found in New Zealand catalogues could be due to the Healthy Kids Industry Pledge launched in 2016 (Ministry of Health, 2017), which led to junk-food-free promotions in catalogues. As most of the retailers included in this study followed the HiLo price promotion strategy, this practice of mere promotion without price discounts was unusual. This is most interesting because the typical assumption has always been that retail catalogues advertise temporary price reductions. Our audit challenges this assumption, suggesting that modern retail practice has moved away from that and instead uses catalogues as media vehicles to promote their full product range, not only price discounts. For example, *magalogues* – a catalogue and magazine hybrid – are becoming a popular choice by retailers. In Australia, Coles and Woolworths publish a monthly magalogue that contains a wide

range of recipes featuring products available in-store, as well as food tips and insights by chefs (B&T, 2017b).

In terms of different deal types, price-off was the most common promotion framing and accounted for 27% of all offers found in the catalogue. This is in line with Bogomolova et al.'s (2015) study, which found that price-off deals were the most prevalent deal type in-store, accounting for 25% of all in-store deals in the United States and 13% in the United Kingdom. A meta-analysis of prevalence of price promotions also found that Australian retailers favoured price reduction promotions rather than volume-based promotions (e.g., multibuy deals) (Kaur & Scarborough, 2020). On the other hand, only 3% of all promotions found in the catalogue were everyday low-price, making it the least prevalent deal type. It is a common industry practice for retailers to feature private labels using everyday low prices, and proprietary brands using HiLo (e.g., price off), because consumers perceive everyday low-price deals to be of low value and scant monetary savings (Septianto et al., 2020). As the discount is not shown or visible to the consumers, they would perceive no savings or value and might purchase an alternative item with a discount.

Depth of Promotions

Our study found that the average discount depth across all deal types was 26%. This is in line with past studies, which found that the average discount depth in-store was 25% to 30% (Bogomolova et al., 2015; Caruso et al., 2018; Tan et al., 2018). Percentage-off had the deepest discount depth of 41%. This is not surprising given the high prevalence of percentage-off deals in the catalogue. Looking across product categories, alcohol and pet care had the lowest discount depth, which is similar to in-store promotions in the United States where cat food had the lowest discount depth (Bogomolova et al., 2015).

Attribute claims

Most products in the catalogue were promoted alongside an image or an artwork, such as a pack shot, serving suggestions, consumption situations, or brand ambassador. This is not surprising, as images are more effective in capturing readers' attention as compared to text (Newman et al., 2014). Claims regarding customers' satisfaction or ratings were only found in Malaysia and Australia, but more commonly featured in Malaysia, evincing the existence of market specific idiosyncrasies between countries. Featuring a consumer's review or rating would increase the perception of the product quality and trust, which helps in making a purchase decision. On the other hand, despite the low prevalence of promotions with satisfaction ratings or claims in Australian catalogues, these claims had the highest discount depth compared to products with images or artworks only. When using satisfaction ratings or claims, Australian retailers might not

need to offer such a deep discount of 43% (the Malaysian catalogue only offered a 16% discount), as the higher perception of product quality might increase a consumer's purchase likelihood.

Contribution to Knowledge and Future Research Agenda

The contribution of this study to academic knowledge and inspiring future research agenda is three-fold.

Firstly, this study fills an important gap in the catalogue and price promotion literature (Pieters et al., 2007; Zhang et al., 2009; Ieva et al., 2022). There is currently a glaring lack of evidence and generalizable quantitative benchmarks regarding typical practice in supermarket catalogue design. That is, managerial decisions about catalogue design, content, composition, format, or layout have never been systematically documented. This study is the first to audit of these practices across a large body of empirical data collected from five countries. Without knowing what the real industry practice looks like, it is challenging to design a research approach that will test the effectiveness of such an important and prevalent tool such as catalogues (Bogomolova et al., 2017). This study fills this gap, and in doing so informs future research avenues related to the field of catalogue, pricing, and price promotion research. Some suggested future research avenues are the following:

- Natural experiments connecting real catalogues (and the decisions that have been made in their context and composition) with real sales data. While such efforts are likely to present significant challenges given the large volume of data, novel techniques using artificial intelligence and data science can uncover real trends for such big data. The findings of such natural experiments could reveal the real sales effectiveness of various catalogue composition decisions. Of particular interest, based on our audit, is to test sales effectiveness by locating the product on the front or back page of the catalogue rather than the inside pages. While in practice managers charge significantly more for those front/back locations, the real return on such an investment has never been tested. The limitation of natural experiments is that some conditions might never get tested in real life.
- Setting up and purposefully conducting field experiments – a technique that will address the above limitation of natural experiments and meticulously test all the conditions of interest. While such experiments would be logistically hard to manage and require a strong partnership between researchers and retail practitioners, such studies would yield the most reliable and ecologically valid evidence about the effectiveness of catalogue design decisions.

Secondly, this study is one of the first to audit catalogues from the perspective of visual media, rather than as a mere price promotion tool, a perspective common in previous catalogue studies

(Pieters et al., 2007; Pentus et al., 2018). This approach allows us to extend our knowledge of print media consumption and consumer gaze to better inform researchers' and practitioners' understanding of typical catalogue content and composition. Our audit has shown that there are different prevalence levels of the promotion elements, such as ad size, ad location, and discount depth. This suggests that managers, when making decisions about catalogue content, are focusing on certain elements more than others. The underlying assumption in these managerial decisions, of course, is that consumers read catalogues in the same way they use other print media. For example, advertisements in the top section of a catalogue offer consumers slightly deeper discount depth as compared to the bottom section (27% vs. 21% discount). On the other hand, the differences are just marginal the left vs. right side of the catalogue (24% vs. 25% discount). So, our suggestions for future research would be to empirically examine consumer gaze when reading catalogues, for example with eye-tracking equipment. Such research would validate the assumptions we noted above, that consumers consume catalogues in the same way as other print media. That research could then inform which aspects of the visual presentation and managers' decisions in designing catalogues are more or less important for attracting consumer attention.

Our third contribution is in uncovering an evolving function of catalogues and their potential to serve more purposes than merely acting as a medium for price discount communication. Our audit shows that more than one-third of products shown in catalogues are at full price; this is already a step away from the original catalogue's purpose of informing consumers of a retailer's range and contributing to brand image-building activities (beyond mere price discounts). In this study we have highlighted similarities between catalogues and other print media (e.g., newspapers, magazines) in decisions taken about their layouts, design, content, etc. For example, the majority of catalogue items were featured using artwork or images, such as serving suggestions, brand ambassadors, or farmland images. This is similar to magazines in other industries, such as department stores, fashion, and furniture stores, where products are incorporated with an appealing image in order to capture the readers' attention (B&T, 2017a). Magazine advertisements are also perceived to be entertaining, informative, and useful (Mehta, 2000). Therefore, it is conceivable that future catalogues could have more varied functions (e.g., entertainment, information, brand building), other than merely featuring price discounts. Indeed, an early trend is currently observed with some supermarket retailers producing 'magalogues' (a hybrid print medium of catalogue and magazine) alongside their traditional catalogues. For example, in Australia, Woolworths supermarket publishes their monthly magazine *Fresh*, which features shopping tips, cooking tips by chefs, produce in season, and recipes highlighting certain product sold in-store. Unlike the catalogue, which aims to communicate discounted items sold in-store, the main aim of a 'magalogue' is to promote items and ingredients available in-store through the use of recipes. There is enormous scope for future research into the evolving nature of catalogues and consumers' responses to them across a wide range of outcomes, from immediate sales uplift of promoted products to influencing

store choice, improving retailer and manufacturer brand image, creating entertainment and enjoyment value, and education (i.e., how to cook or choose products), for example.

Managerial Implications

Results from this study provide retailers with a better understanding of the common practices in catalogue promotions. Understanding the prevalence of promotions and discount depth across product categories would help retailers uncover which categories are promoted more often by their counterparts. For example, in Australia, pet care items had an average discount of 29%. With this knowledge, Australian retailers can adjust their in-store promotions accordingly, as well as ensure that their promotions are relevant and do not erode the retailer's profit margin. On the other hand, knowing what competitors are doing gives the retailer an edge to create a unique and distinctive catalogue, which could make them stand out from the crowd.

Furthermore, when looking across the different promotion framing types, the results can help retailers better understand a competitor's promotional tactics. For example, in the United States, retailers do not use any everyday-low-price or exclusivity type promotions. Instead, they often promote products in bundles or multi-buy formats. This could be due to the high prevalence of bundled food promotions and their association with low price (Exum et al., 2014). There were more discounted promotions for unhealthy meal deals, while healthy foods were "unadvertised". Therefore, to ensure that customers are familiar with the promotions, retailers can promote their products in various bundling formats, such as '5 for \$X', or 'dinner meal bundle for \$X'. Analysing the front and back pages of catalogues offers retailers some guidance in terms of the products that are primarily targeted and advertised by their competitors. This will ensure that retailers are keeping up with the market and promoting items that are in season.

For suppliers, this study enables them to ascertain common promotion practices in supermarket catalogues. This is especially important for international brands that have dedicated promotional teams in each country. By better understanding the catalogue features in the local country, such as the duration of promotion, number of pages, and number of promoted items, suppliers can create better and more relevant promotions. Rather than applying a uniform strategy for catalogue advertising across countries, suppliers must understand the norms and practices of each market. This in turn, will maintain, or better yet increase, consumers' readership of the catalogue. As consumers maintain their engagement with catalogue promotions, suppliers can continue to negotiate deals with retailers and push their products to market.

There are also implications for advertising agencies and printing companies. A better understanding of the elements that matter in a catalogue (i.e., the content, style, and look) for

consumers and readers would enable them to improve the whole catalogue production management. For example, as readers typically read from top left to bottom right, a row format would be used more often than a column format – as evident in catalogues in Malaysia, New Zealand, and South Africa, as there were no items promoted in a column format. Therefore, media companies should utilize other formats when arranging products in a catalogue.

Furthermore, this study could also help policy makers and regulators (e.g., the Australian Competition and Consumer Commission in Australia, the Federal Trade Commission in the United States, and the Consumer Protection in New Zealand) in crafting standardized guidelines or regulations for catalogue promotions, which would ensure that all promotional information is accurate and reliable. Consumers could then be assured that the catalogue promotions are not misleading and/or deceptive, as the media would also be subject to government regulations. Our study found that an average of 41% of catalogue products did not show any price discounts. Over the years, consumers have been conditioned to associate catalogue promotions with price discounts. Therefore, consumers could be misled into thinking that they are benefiting some monetary savings by purchasing the promoted products, when in fact the product was not discounted at all. Having the numerical benchmark for various practices in different countries could be very valuable for managers.

Ultimately, supermarket catalogues, both print copies and digital (desktop and mobile app), remain relevant and useful for consumers. Despite the recent move by one market leader towards digital catalogues only (Australian Financial Review, 2020), print catalogues remain the second (after supermarket emails) most useful way for consumers to find supermarket promotions (Inside FMCG, 2021). There is a higher proportion of consumers who read print catalogues compared to reading them online: 68% of consumers aged between 25 and 34 read print catalogues, as compared to 12% who access them online (The Real Media Collective, 2018). It should also be noted that very often the content of the catalogue is almost identical in both print and digital formats (in terms of the product, price information presentation and framing, layout of visual elements, etc.), which means that consumers would consume such information in the same way both electronically and in print, the only difference being the delivery method. The findings from this research would nonetheless remain important and relevant for the industry in the future.

Limitations

A limitation this study is its scope, as only supermarket catalogues were chosen for analysis (excluding any 'magalogues' produced by the supermarket sample). Other industries, such as department stores and furniture stores, were excluded from this study. However, it should be noted that grocery is the largest market sector for catalogue promotion in Australia (22%), followed by

department stores (12%), specialty retail (10%), and furniture stores (9%) (Australian Catalogue Association, 2017). Moreover, the actual size of the catalogue was not taken into account, as the catalogues were accessed online.

The five countries in this study were chosen to represent variations worldwide, across developed and developing countries. Future research could improve this study's level of detail by including more countries and across all continents. Moreover, the sampling timeframe of three promotion cycles meant that seasonal variation was omitted. Future studies using a longer timeframe could investigate seasonal variation, especially for the northern versus southern hemispheres.

This research is an audit and benchmark on the content of catalogues, based on consumer gaze theory. However, examining and capturing consumer attention was beyond the scope of this study. Future studies could improve the results by using an eye-tracking device to capture the reader's gaze and attention.

Lastly, the effectiveness of the results of this content are driven by industry behaviour and might not be a true reflection of the efficacy of the promotion. In other words, the content analysis does not indicate whether the average discount depth drives sales or foot traffic into stores. Investigating the consumer's determinant of catalogue usage and supermarket visit was beyond the scope of this paper. Future researchers could conduct panel surveys or fieldwork to investigate the consumer's drive to use catalogues and/or to shop at one store rather than another. Though field experiments are logistically difficult and require collaboration with industry practitioners, the results are very reliable and would validate the effectiveness of catalogues. If catalogue promotion *is* a factor that increases foot traffic into stores, retail managers could better negotiate trade deals with suppliers and increase their revenue income.

CHAPTER 4: STUDY 3

Chapter 4 presents the third study of this thesis. This study was submitted and is currently under review in the *International Journal of Advertising* (IJA). This journal publishes original contributions on all aspects of marketing communications from the academic, practitioner, and public policy perspectives. The journal is ranked A under the 2022 Australian Business Deans Council (ABDC). IJA has a CiteScore of 7.6 and a five-year Impact Factor of 6.26. It is ranked #10 in Communication under Google Scholar Metrics, with a h5-index of 43.

SALES EFFECTIVENESS OF SUPERMARKET CATALOGUE PLACEMENTS

Abstract

Supermarket catalogues remain a popular media option for retailers and manufacturers as a form of advertising and income generation. Previous research has examined how catalogues affect store sales, but little is known about how catalogue layouts affect the sales of each promoted product. This study addresses this gap by conducting a natural experiment using transactional data from 74 stores in Australia on the same product across different catalogue locations: the cover page of the catalogue vs. inside major (inner-page large feature) vs. inside minor (inner-page smaller feature). A novelty of this study is the inclusion of the internal context of a retailer's promotional plan within the analysis, to which market research companies do not traditionally have access. The results show a significant interaction between a product's location in a catalogue, its discount, and the product category on the actual quantity sold. Compared to in-store promotions without any catalogue support, a placement on the cover page generated an average of 194% sales uplift in quantity sold, followed by inside major at 116% uplift and inside minor at 109% uplift.

Keywords: supermarket catalogue, retail promotion, purchase behaviour, natural experiment

Introduction

Promotional planning – also known as promotional programming or trade promotion – is a programme of promotional activities typically funded by both retailers and manufacturers, and can account for up to 20% of a manufacturer's revenue. These promotional activities drive almost 80% of the manufacturer's sales volume (Michalewicz et al., 2021). One of the most common promotional activities is catalogue production, which is used by supermarkets to communicate price discounts and product range offerings to shoppers (Blattberg & Neslin, 1990; Bogomolova et al., 2017; Pieters et al., 2007; Tan et al., 2021; Zhang et al., 2009).

Studies have shown that price promotions with catalogue support generate higher sales and customer count (cf. no marketing support) (Gázquez-Abad & Martínez-López, 2016; Narasimhan et al., 1996; Volle, 2001). However, despite the extensive use of catalogue promotions in retail practice, there is a limited understanding of how catalogue design affects retailers' sales levels. Moreover, there is a great similarity between a print supermarket catalogue and other print media, which sparked our interest in applying a media placement lens to supermarket catalogues (Tan et al., 2022). This prompted calls for further research to better understand how catalogue design affects retailers' sales levels (Ieva et al., 2022; Pieters et al., 2007). To the best of our knowledge, only a few studies have specifically investigated catalogue design and sales performance (Gijsbrechts et al., 2003; Mulhern & Leone, 1990). The results of a study carried out by Gijsbrechts et al. (2003) showed an increase in store sales and in the number of receipts: increasing the average discount depth from 15% to 25% increased store sales by only 7% and the number of receipts by 6%. Yet the scope of that study did not include the sales effectiveness of catalogue layout in terms of ad size or location.

The current research extends the understanding of supermarket catalogue sales effectiveness by examining the sales uplift of (the same) promoted product across different catalogue locations (cover page or inside) compared to only in-store promotions without any catalogue support. The scope of the research covers both hedonic and utilitarian product categories. An increased understanding of the sales effectiveness of supermarket catalogues will allow retailers to create more efficient catalogue designs in order to increase their return on investment from using this popular and costly marketing tool. It represents a win-win situation for both retailers and manufacturers, as retailers' revenue will increase through better trade promotion deals, and manufacturers will achieve their key performance indicators through increased sales. This is the first study to isolate how different product placements in catalogues influence sales levels.

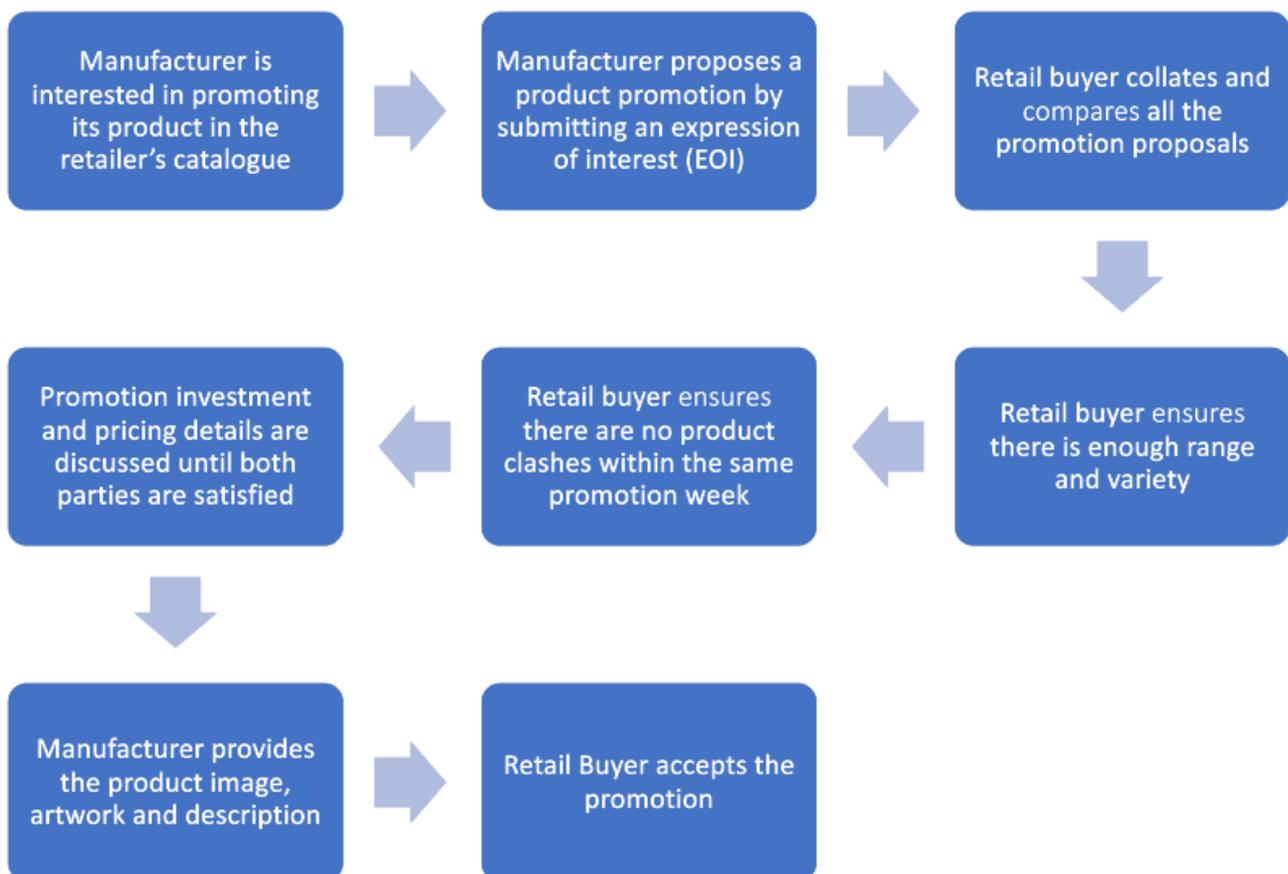
Background and Research Questions

Supermarket Catalogue

Supermarket catalogues – also known as store leaflets, circulars or brochures – are among the most important and prevalent marketing tools used by store managers to promote price discounts, product range offerings, and events happening in-store (Blattberg & Neslin, 1990; Pieters et al., 2007; Zhang et al., 2009). Catalogue promotion is generally valid for eight days, promoting an average 237 items across 22 pages (Tan et al., 2022). Consumers have found catalogues the most useful medium when making purchase decisions for groceries (Real Media Collective, 2019a). Fifty-five percent of primary grocery buyers made a purchase after reading a catalogue in the previous seven days (Real Media Collective, 2019a).

Products featured in the catalogue are mutually agreed upon between retailer and manufacturer. However, retailers make the final decisions during the production of a catalogue, as manufacturers can only influence within the parameters of the deals agreed upon. Through private conversations with retail buyers in one large Australian supermarket chain, the internal standard procedure for product advertisement in the catalogue was discovered. Although there are likely variations across different retailers, the overall activities and steps are likely to be similar (see Figure 4).

Figure 4 *Catalogue Production Process*



First, the manufacturer must submit an expression of interest to the retailer at least six months in advance, stating the product, price, and intended timeframe to be advertised. Next, the retail buyers collate the forms from all the different manufacturers and compare them to ensure sufficient variety. If there are no clashes in advertised products (i.e., competing brands with products on

promotion in the same category at the same time) within the scheduled promotion week, the manager can then accept and promote the product in the catalogue or in-store. The retail buyer can then decide on the product placement in the catalogue in terms of its size and location (see Table 14).

Table 14 *One Retail Chain's Promotion Guideline for Catalogue Placement*

| Catalogue Location | Characteristics |
|--------------------|--|
| Front or back page | <ul style="list-style-type: none"> • The product is placed on the front or back page of the catalogue. • One to two variants are featured. • The product is supported with a shelf ticket in-store. |
| Inside as major | <ul style="list-style-type: none"> • The product is placed in the interior of the catalogue. • <i>Two</i> variants are featured. The product image is larger than minor. • The product is supported with a shelf ticket in-store. |
| Inside as minor | <ul style="list-style-type: none"> • The product is placed in the interior of the catalogue. • <i>One</i> variant is featured. The product image is smaller than major. • The product is supported with a shelf ticket in-store. |
| In-store only | <ul style="list-style-type: none"> • The product is not placed in the catalogue. • The product is supported with a shelf ticket in-store. |

Therefore, a high level of inputs and decisions is required from both retailers and manufacturers in producing catalogues. This is due to

- 1) *Short intervals between catalogue promotions.* Supermarkets typically produce catalogues on a weekly basis, whereas other sectors, such as department stores, produce monthly or quarterly catalogues. To meet the weekly deadline, supermarket catalogues are under significant time pressure.
- 2) *Competitive market.* The same brand and pack size of many products, e.g., soft drinks, can be found across multiple supermarket chains. Retailers must ensure that their pricing is competitive in the market to attract consumers.
- 3) *High cost.* Catalogue production is a resource-intensive process, whether digital or print catalogue. Both formats still involve high costs in designing and managing the production. For print catalogues, there is an additional cost for the catalogue to be printed and distributed to households.

Manufacturers and retailers must maintain a delicate balance when negotiating trade promotions (e.g., catalogues). On the one hand, each manufacturer relies on retailers to grow its market share,

as it has limited options to get its products from factory to consumers (the most prevalent one being supermarkets). On the other hand, retailers need promotional activities (e.g., catalogues) from market-leading brands to drive shoppers into their stores and increase sales (Bogomolova et al., 2017; Michalewicz et al., 2021). Therefore, this raises the stakes in creating a successful catalogue promotion that effectively increases sales and revenue for both parties.

Catalogue Layout

On a print catalogue's page, a promoted product's image (i.e., its size and location) can influence consumers' attention and purchase intention (Gijsbrechts et al., 2003; Pieters et al., 2007). The front and back pages have been reported as the most effective in capturing the consumer's attention (Gijsbrechts et al., 2003; Pieters et al., 2007). One study included a natural experiment that involved changing the store's catalogue from promoting many items at small discounts to promoting a few items at deep discounts (Mulhern & Leone, 1990). The results showed that the change in catalogue strategy led to a 3% increase in chain-wide sales and a 4% increase in store-level sales. However, there was no significant effect on the total number of customers. The limitations of Mulhern and Leone's (1990) study were that it included no analysis of the changes in sales at the brand level and there was no manipulation of the brand ad placement in the catalogue.

The most relevant study was by Gijsbrechts et al. (2003). The authors analysed the composition of catalogues and their impact on store sales and store traffic (derived from the weekly number of receipts per store outlet). They manipulated the total number of pages in the catalogue, the average discount depth, the category composition on the cover page (specialty vs. produce vs. fish/meat), and the share of private labels. Data came from 55 supermarket outlets over a single year. The overall results showed a marginal increase in in-store sales and traffic: increasing the average discount depth from 15% to 25% only increased in-store sales by 7% and the number of receipts by 6%. When the specialty category (e.g., wines, champagnes, delicatessen) was on the cover page, it only increased store sales by 4% and the number of sales by 3%. There was no significant effect from changing the total number of pages in the catalogue. However, the results were reported at store level, not at brand level.

The reasoning behind why the design of a catalogue layout matters (see Table 14) is also in line with consumer gaze theory: where consumers look is where they focus their attention. According to Wedel and Pieters's (2015) review of eye-tracking research, a consumer's eyes are initially drawn to perceptual features, such as colour, shape, contrast, position, and size. Pictures and brand surface size receive the most fixation, followed by text. The authors also found that fixations on the pictures and brand increased the accuracy of brand memory. This could explain why manufacturers would pay more for *major* promotions and feature more product variants compared to *minor* promotions.

Sales Effectiveness of Catalogues

Data from loyalty programs and consumer panel providers (e.g., Nielsen, Kantar, GfK) track household purchases and contain detailed metrics, such as product category, discount, catalogue promotion, and in-store displays, among others. Past studies have used these datasets in various ways, such as examining the impact of catalogue distribution and readership on purchase behaviour (Ieva et al., 2022), or how the composition of catalogues influences store sales (Gijsbrechts et al., 2003; Mulhern & Leone, 1990). However, these commercial data do not contain the context behind the sales figures. Thus the results do not reveal the whole story, especially in terms of the retail buyer's decision process. There is an unaddressed gap between academic and industry knowledge. Therefore, this study considers this gap, as I had access to the promotional plan from an Australian supermarket chain's buying team. The retail buyer's promotional planner provides context for an analysis of the data, as well as a deeper level of detail, making an actual natural experiment possible.

In a study of three types of promotions (15% discount only, 15% discount with a catalogue ad, and 15% discount with an in-store display), retail scan sales from discount-only promotions were five times higher when supported with a catalogue (Narasimhan et al., 1996). Although the authors did not find any statistically significant effects for impulse-purchase categories, the results showed that discounts with a catalogue feature had a positive promotional elasticity effect. The authors explained that the lack of a significant effect on the impulse-purchase categories could be due to other factors, such as the interpurchase time and the price point. However, a gap in that study was the lack of sales analysis at the brand level, and there was no catalogue manipulation.

Catalogue promotions also have some inherent weaknesses. A NielsenIQ (2022a) study showed that although 33% of products were sold on promotion on average, 20% of these promoted products would have been sold even without a discount. In addition, there were no significant effects on influencing consumers' store choices, even when supported with other above-the-line advertising (e.g., outdoor and radio) (Volle, 2001). That is, consumers' store choices were stable in the short term. Moreover, catalogues can also induce brand shuffling rather than stockpiling (Gázquez-Abad & Martínez-López, 2016), which is consistent with the role of advertising (i.e., a catalogue is used as a tool to nudge the purchase propensity of a promoted brand). Catalogues influenced consumers' decisions to purchase a brand and which brand to choose, but not their purchase quantity. This supports the idea that a catalogue could serve as an advertisement, in addition to simply being a medium for price discounts, and that it increases the mental availability of the category and brand. Therefore, there is a need for more research into the role of catalogues in order to understand their effectiveness in brand promotion strategy.

Product Category and Sales

Product categories can be classified based on the products' hedonic or utilitarian properties. Products are classified as hedonic when consumers purchase them for pleasure and entertainment purposes (e.g., soft drinks, confectionery, and snacks), whereas utilitarian products are purchased for functional or practical needs (e.g., food, soap, and shampoo) (Garrido-Morgado et al., 2020; Hirschman & Holbrook, 1982; Wertenbroch & Dhar, 2000). In other words, products can be classified based on *want* versus *need*. Garrido-Morgado et al.'s (2020) study showed that shelf signage generated a greater increase in sales for utilitarian products than for hedonic products; on the other hand, island displays and end-of-aisle displays generated higher sales for hedonic products than for utilitarian products.

The interaction between advertising and price promotions must also be considered by retailers and manufacturers when scheduling catalogue promotions. Looking at the interaction effect between advertising (catalogue feature vs. in-store displays) and price promotion, catalogue-supported promotions had higher sales increases (average 227%) than in-store display promotions (average 130%) (Dunn, 2018). Looking at price elasticity, catalogue promotions had a larger elasticity than unfeatured promotions (3.4 with feature vs. 1.3 without feature). Across product categories, the results were as follows:

- Chocolate: 2.6 with feature vs. 1.1 without feature.
- Cat food: 3.2 with feature vs. 0.8 without feature.
- Laundry detergent: 6.1 with feature vs. 2.5 without feature.
- Soup: 3.2 with feature vs. 1.0 without feature.

In addition, a recent study by Woo et al. (2022) examined the effect of product category type (price, purchase frequency and perishability) and product-catalogue location on retail sales volume. The authors found that the sales volume of low-priced products was consistently higher than for high-priced products, regardless of the product's location in the catalogue. Products with high purchase frequency, compared to low purchase frequency, generated a higher sales volume regardless of catalogue location. Perishable products generated a higher sales volume when placed on the front and back pages than non-perishable products. Although the authors examined the relationship between product category type and catalogue location, the gap in this particular study is the lack of analysis of the same product in different catalogue locations.

Building on prior studies and addressing their limitations and knowledge gaps, our study examined the sales effectiveness of supermarket catalogues across different catalogue placement and product categories, addressing the following research questions:

RQ1: What is the impact of discount depth, catalogue location, and product classification on sales quantity, and are there interaction effects?

RQ2: What is the sales uplift (in quantity sold) of a product promoted in a catalogue, and how does the sales uplift differ across catalogue locations?

RQ3: How does the sales uplift for catalogue-advertised products differ across hedonic vs. utilitarian product categories?

Data and Analysis

To analyse the sales effectiveness of catalogues, we conducted a natural experiment by obtaining transaction sales data from 74 stores from a large supermarket chain in Australia. The stores were located across metropolitan and other areas. The data were collected from January to December 2019. Data from 2020 onwards were excluded from analysis due to the disruptions caused by the COVID-19 pandemic. Fifty-two weekly catalogues were analysed for this experiment, containing 18,878 stock-keeping units (SKUs) and 11 product categories.

The hedonic or utilitarian nature of the product categories was classified based on a prior study (Coelho do Vale & Verga Matos, 2015). Hedonic products are associated with amusement and pleasure, whereas utilitarian products are acquired for a specific function or task (Coelho do Vale & Verga Matos, 2015). Table 15 illustrates the relevant product category classifications.

Table 15 *Product Category Classification*

| Classification | Category | Number of SKU |
|-----------------------|-----------------|----------------------|
| Hedonic | Cold Beverages | 16 |
| | Confectionery | 56 |
| | Delicatessen | 4 |
| | Frozen | 38 |
| | Nuts & Snacks | 34 |
| Utilitarian | Bakery | 3 |
| | Dairy | 10 |
| | Food | 141 |
| | Household | 22 |
| | Personal Care | 34 |
| | Pet Care | 14 |
| Grand Total | | 372 |

Dependent and Independent Variables

To quantify the sales uplift objectively, unit quantity was chosen as the dependent variable. Factors beyond our control, such as inflation and individual store pricing, could also cause disruption in the dollar sales results. Hence, this study focuses on unit quantity, rather than sales value or dollar revenue.

The independent variables in this study are:

- i. The different position of the advertised product in the catalogue. The catalogue location is documented as follows:
 - o **Cover page:** front or back page of the catalogue
 - o **Inside major:** inside the catalogue with a bigger picture (two SKUs (stock-keeping units) are displayed)
 - o **Inside minor:** inside the catalogue with a small picture (only one SKU is displayed)
 - o **In-store only:** promoted in-store only without catalogue support
- ii. Depth of discount
- iii. Product classification: utilitarian or hedonic

Figure 5 and Table 16 illustrate the descriptive statistics of the model. There were four SKUs promoted at 0% discount, which were incidentally new products. Hence, they were promoted in-store, only at zero discount depth (i.e., just a shelf flag to advertise the new product without any discount). For the discount depth, the mean is at 36%, the mode is 50%, and the median is 34%.

Figure 5 Count of Products at Different Discount Depths

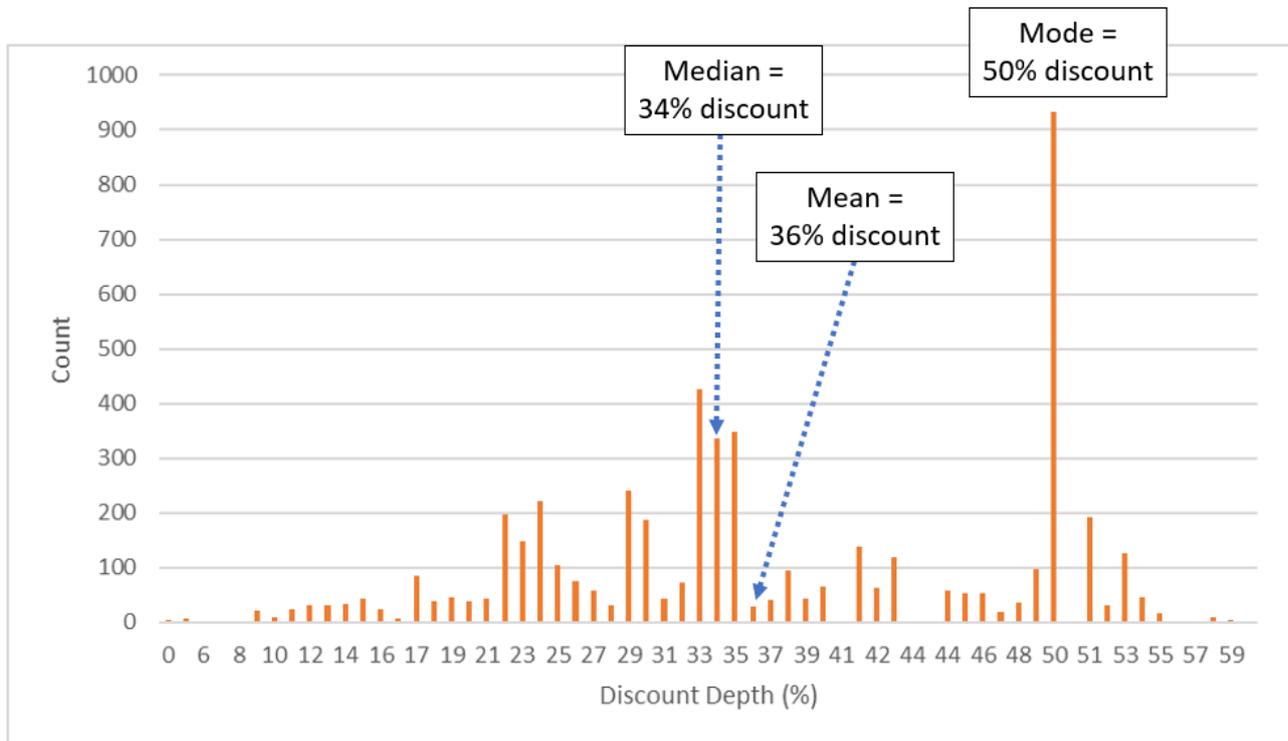


Table 16 Count of Products at Each Catalogue Location and Product Classification

| | Value Label | n |
|------------------------|-----------------|------|
| Catalogue Support | Front/Back Page | 820 |
| | Inside (Major) | 2246 |
| | Inside (Minor) | 1361 |
| | In-store Only | 837 |
| Product Classification | Hedonic | 2863 |
| | Utilitarian | 2401 |

Results

An ANOVA was conducted to answer RQ1 (i.e., to examine the association between discount depth, catalogue location and product classification on the sales quantity) (Table 17). Looking at the main effects, discount depth and catalogue locations were statistically significant. There was a

statistically significant interaction in discount ($p = .00$) and catalogue location ($p = .02$). The partial eta squared value shows that the relative impact of discount is much greater on retail sales than catalogue location.

Table 17 3-way ANOVA Model

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared |
|--|-------------------------------|-------|----------------|--------|------|---------------------|
| Corrected Model | 1,748,955,489.73 ^a | 239 | 7,317,805.40 | 4.58 | 0.00 | 0.18 |
| Intercept | 336,550,188.00 | 1 | 336,550,188.00 | 210.51 | 0.00 | 0.04 |
| Discount | 418,243,459.33 | 61 | 6,856,450.15 | 4.29 | 0.00 | 0.05 |
| Catalogue Location | 14,967,581.33 | 3 | 4,989,193.78 | 3.12 | 0.02 | 0.00 |
| Product Classification | 1,347,066.54 | 1 | 1,347,066.54 | 0.84 | 0.36 | 0.00 |
| Discount * Catalogue Location | 319,226,854.73 | 99 | 3,224,513.68 | 2.02 | 0.00 | 0.04 |
| Discount * Product Classification | 176,544,400.78 | 41 | 4,305,960.99 | 2.69 | 0.00 | 0.02 |
| Catalogue Location * Product Classification | 10,224,060.23 | 3 | 3,408,020.08 | 2.13 | 0.09 | 0.00 |
| Discount * Catalogue Location * Product Classification | 139,590,161.84 | 31 | 4,502,908.45 | 2.82 | 0.00 | 0.02 |
| Error | 8,031,874,487.20 | 5,024 | 1,598,701.13 | | | |
| Total | 13,001,708,373.00 | 5,264 | | | | |
| Corrected Total | 9,780,829,976.94 | 5,263 | | | | |

a. R Squared = .18 (Adjusted R Squared = .14)

Looking at the two-way interaction effects, there was a statistically significant interaction between discount and catalogue location ($p = .00$), as well as between discount and product classification ($p = .00$). There was no statistically significant interaction between catalogue location and product classification ($p = .09$). This suggests that discount depth has the strongest influence on sales quantity level, as compared to catalogue location and product classification.

There was a statistically significant three-way interaction among discount, catalogue location, and product classification ($p = .00$). The adjusted R squared indicates that 14% of the variance in retail sales quantity is attributable to discount, catalogue location, and product classification.

A Tukey post-hoc test revealed that the cover page generated 399 units higher than inside major, 479 units higher than inside minor, and 840 units higher than in-store only. The uplifts in sales

quantity were all statistically significant ($p = .00$) (Table 18). There was no statistically significant difference in the retail sales quantity between inside major and inside minor ($p = .25$).

Table 18 *Tukey Post-Hoc*

Dependent Variable: Retail Sales Quantity

| (I) Catalogue Location | | Mean Difference (I- J) | Std. Error | Sig. | 95% Confidence Interval | |
|------------------------|----------------|------------------------------|---------------|------|-------------------------|----------------|
| | | | | | Lower Bound | Upper Bound |
| Front/Back Page | Inside (Major) | 399.15* | 51.59 | 0.00 | 266.58 | 531.73 |
| | Inside (Minor) | 479.49* | 55.89 | 0.00 | 335.85 | 623.14 |
| | In-store Only | 840.47* | 62.13 | 0.00 | 680.82 | 1,000.13 |
| Inside (Major) | Front/Back | -399.15* | 51.59 | 0.00 | -531.73 | -266.58 |
| | Page | | | | | |
| | Inside (Minor) | 80.34 | 43.43 | 0.25 | -31.28 | 191.96 |
| Inside (Minor) | In-store Only | 441.32* | 51.20 | 0.00 | 309.73 | 572.91 |
| | Front/Back | -479.49* | 55.89 | 0.00 | -623.14 | -335.85 |
| | Page | | | | | |
| In-store Only | Inside (Major) | -80.34 | 43.43 | 0.25 | -191.96 | 31.28 |
| | In-store Only | 360.98* | 55.54 | 0.00 | 218.25 | 503.71 |
| | Front/Back | -840.47* | 62.13 | 0.00 | -1,000.13 | -680.82 |
| In-store Only | Page | | | | | |
| | Inside (Major) | -441.32* | 51.20 | 0.00 | -572.91 | -309.73 |
| | Inside (Minor) | -360.98* | 55.54 | 0.00 | -503.71 | -218.25 |

Based on observed means.

The error term is Mean Square (Error) = 1,598,701.13.

*. The mean difference is significant at the .05 level.

To visualise the results, we consolidated the discount depth and rounded it to the nearest 10%. As shown in Figure 6, the highest sales uplifts were from products featured on the cover page at 20% discount depth. Both inside major and inside minor placements at 50% discount generated similar levels of sales uplift. Interestingly, at the deepest discount depth of 60%, inside major placements generated a lower sales level than the cover page. It is also worth noting that at 40% discount, inside major and inside minor placements generated higher sales than the cover page. Looking at the product classification, results showed that hedonic products generated a higher sales level, as compared to utilitarian products (see Figure 7). Interestingly, at 50% discount depth, hedonic and utilitarian products generated a relatively similar sales level.

Figure 6 Column Chart of Retail Sales by Discount and Catalogue Support

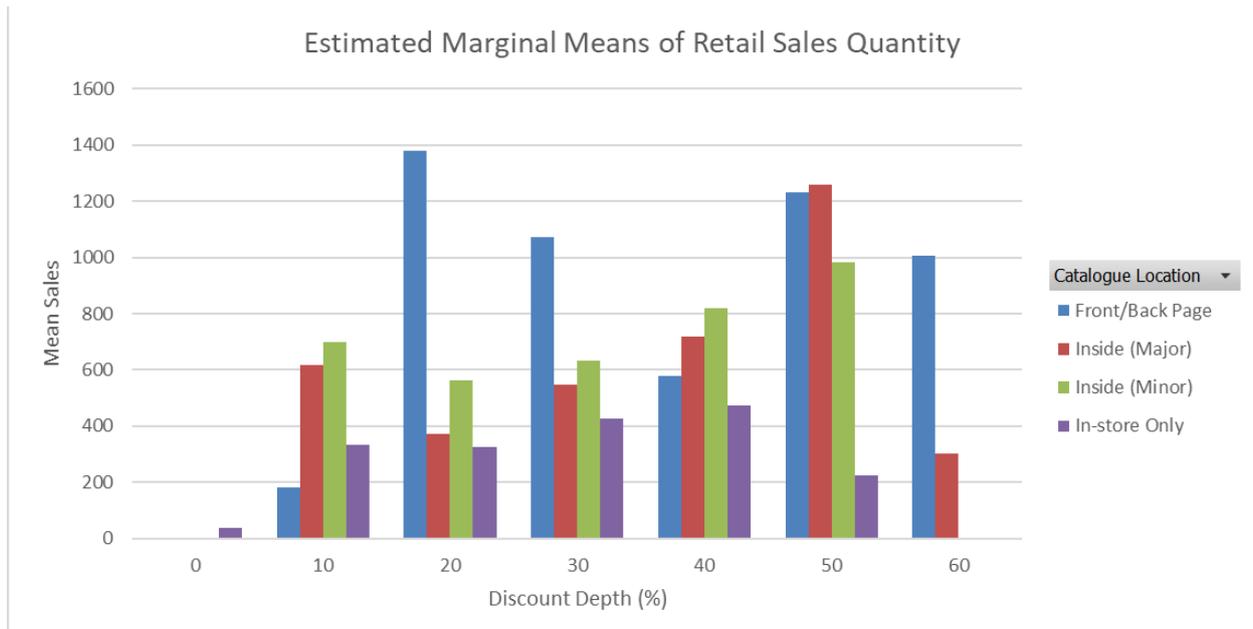
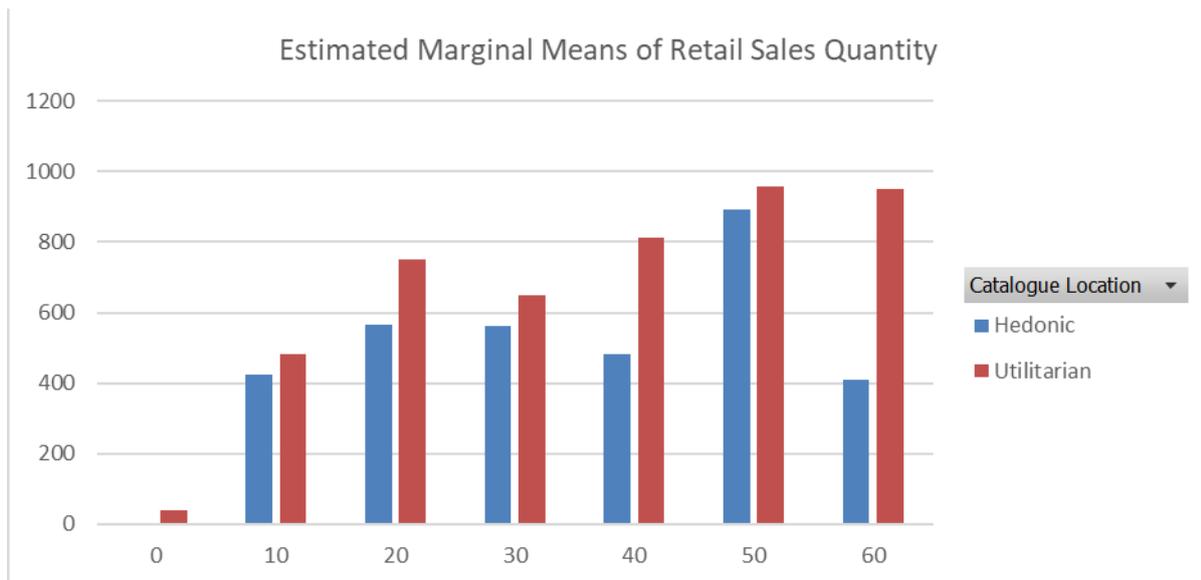


Figure 7 Column Chart of Retail Sales by Discount and Product Classification



Our results contradict two common industry beliefs:

1. Deeper discounts always lead to higher sales volumes. A typical solution for retailers to increase sales is by offering discounts to customers, as they assume that the sales level will increase incrementally with the level of price discounts. However, the evident is showing otherwise. At 50% discount, the sales level of the front/back page products were lower as compared to when it was at 20% discount.
2. Catalogues should always promote price discounts, and generic brand messages are a waste of space. Retailers have always seen catalogue as a price discount tool and nothing

more. However, catalogue could serve as a brand advertisement tool by increasing the brand's mental availability. This is because catalogue products often get additional marketing support, such as in-store displays, TV and radio ads.

In response to RQ2, the estimated marginal means results from the ANOVA model shows that cover page generated the highest sales quantity (1,139 units) followed by inside major (838 units), inside minor (811 units), and in-store only (388 units). When compared with in-store only without catalogue support, cover page placements generated an average of 194% sales uplift, followed by inside major at 116% uplift and inside minor at 109% uplift. The average sales quantity for cover page, inside major and inside minor placements was 930 units, while the average sales quantity for in-store only without catalogue support was 388 units. Accordingly, the sales uplift of catalogue promotion is an average of 140% (Table 19).

Table 19 Average Sales Quantity Across Catalogue Location

Dependent Variable: Retail Sales Quantity

| Catalogue Location | Mean | Std. Error | 95% Confidence Interval | |
|--------------------|-----------------------|------------|-------------------------|-------------|
| | | | Lower Bound | Upper Bound |
| Front/Back Page | 1,138.86 ^a | 123.38 | 896.99 | 1,380.73 |
| Inside (Major) | 838.46 ^a | 65.05 | 710.93 | 965.98 |
| Inside (Minor) | 811.37 ^a | 77.27 | 659.88 | 962.86 |
| In-store Only | 387.55 ^a | 75.88 | 238.79 | 536.31 |

a. Based on modified population marginal mean.

In response to RQ3, when looking across catalogue location and product classification, the cover page remains the most effective in generating the highest sales quantity for both hedonic and utilitarian products. On the other hand, in-store only without any catalogue support generated the lowest sales quantity. Interestingly, for utilitarian products, being promoted inside as minor generated a higher sales quantity than inside major placements (Table 20). A further breakdown by category is discussed in the next section.

Table 20 Average Sales Quantity Across Catalogue Location and Product Classification

Dependent Variable: Retail Sales Quantity

| Catalogue Location | | Mean | Std. Error | 95% Confidence Interval | |
|--------------------|-------------|-----------------------|------------|-------------------------|-------------|
| | | | | Lower Bound | Upper Bound |
| Front/Back Page | Hedonic | 1,193.73 ^a | 209.28 | 783.44 | 1,604.01 |
| | Utilitarian | 1,114.27 ^a | 152.07 | 816.15 | 1,412.40 |

| | | | | | |
|----------------|-------------|---------------------|--------|--------|----------|
| Inside (Major) | Hedonic | 934.38 ^a | 80.22 | 777.11 | 1,091.65 |
| | Utilitarian | 787.15 ^a | 90.15 | 610.42 | 963.878 |
| Inside (Minor) | Hedonic | 667.53 ^a | 112.08 | 447.81 | 887.26 |
| | Utilitarian | 904.67 ^a | 104.62 | 699.58 | 1,109.76 |
| In-store Only | Hedonic | 352.57 ^a | 104.76 | 147.20 | 557.94 |
| | Utilitarian | 409.01 ^a | 104.22 | 204.71 | 613.32 |

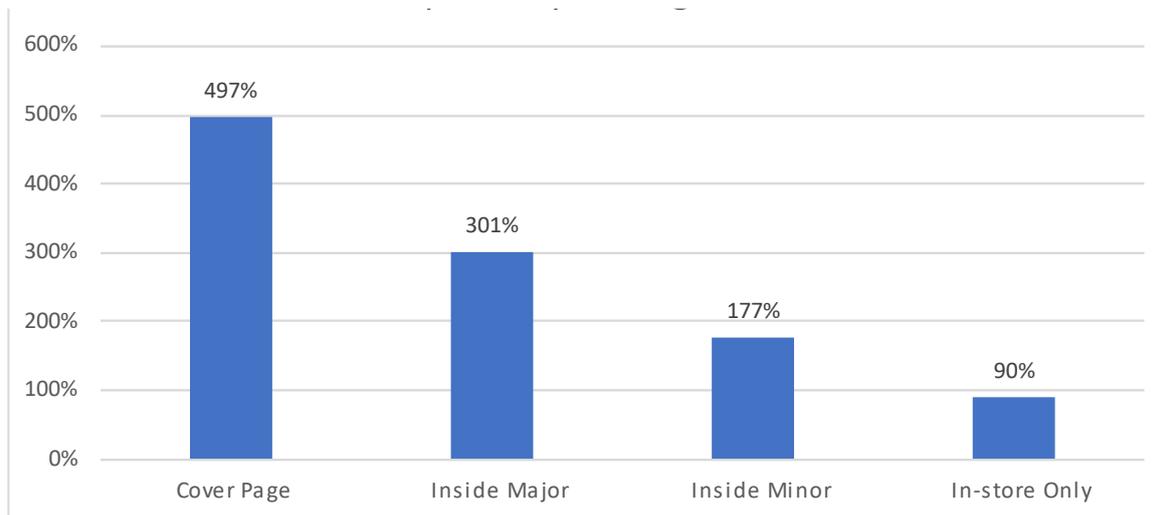
a. Based on modified population marginal mean.

Supplemental Analysis and Results: Sales Uplift in Percentage

In order to obtain a clearer picture of the results, additional analysis was conducted by calculating the sales uplift in percentage instead in unit quantities. This helped highlight some of the trends and patterns within the results.

Overall, looking across the catalogue location, it is clear that cover page generated the highest sales uplift (an increase of 497%), followed by inside major (301%), inside minor (177%), and in-store only without catalogue support (90%). This is not factoring in or considering the discount depth or product category classification.

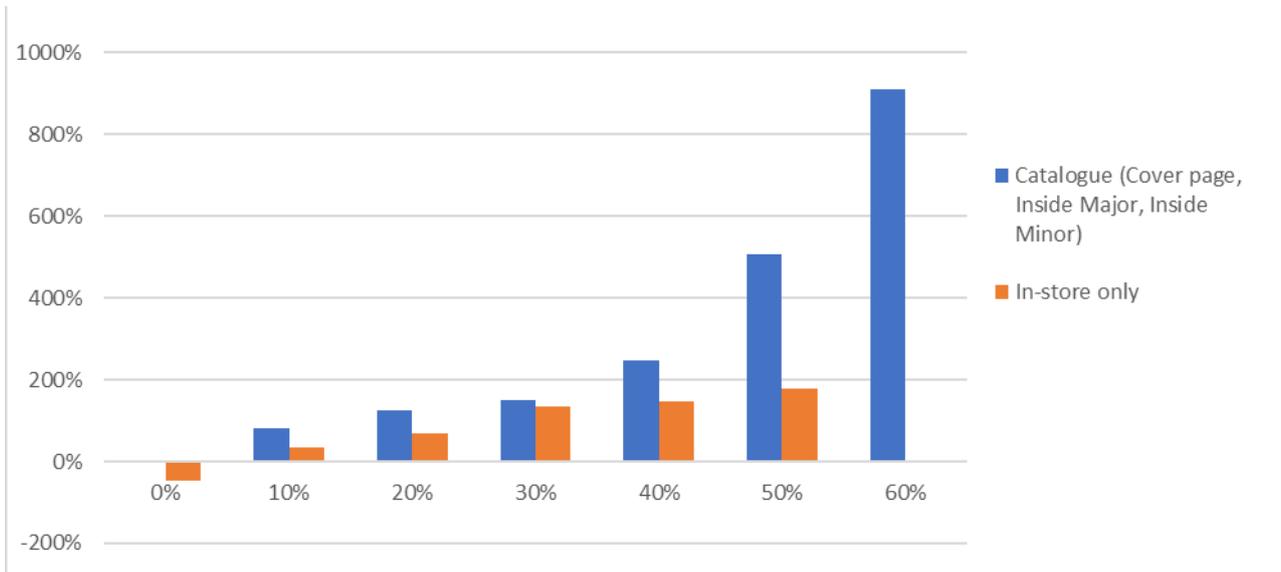
Figure 8 Sales Uplift % by Catalogue Location



To understand the effectiveness of catalogue promotion at different discount depths, as compared to in-store without catalogue support, all three catalogue locations were combined as a whole. The results showed that with greater discount, products promoted in-catalogue, regardless of the specific location, generated a higher sales uplift than in-store only without catalogue support. However, there seems to be a threshold for when to expect an exponential growth in sales uplift. At 40% or more discount, there is an exponentially higher sales uplift for products promoted in-catalogue, as compared to in-store only. On the other hand, when products are promoted in-

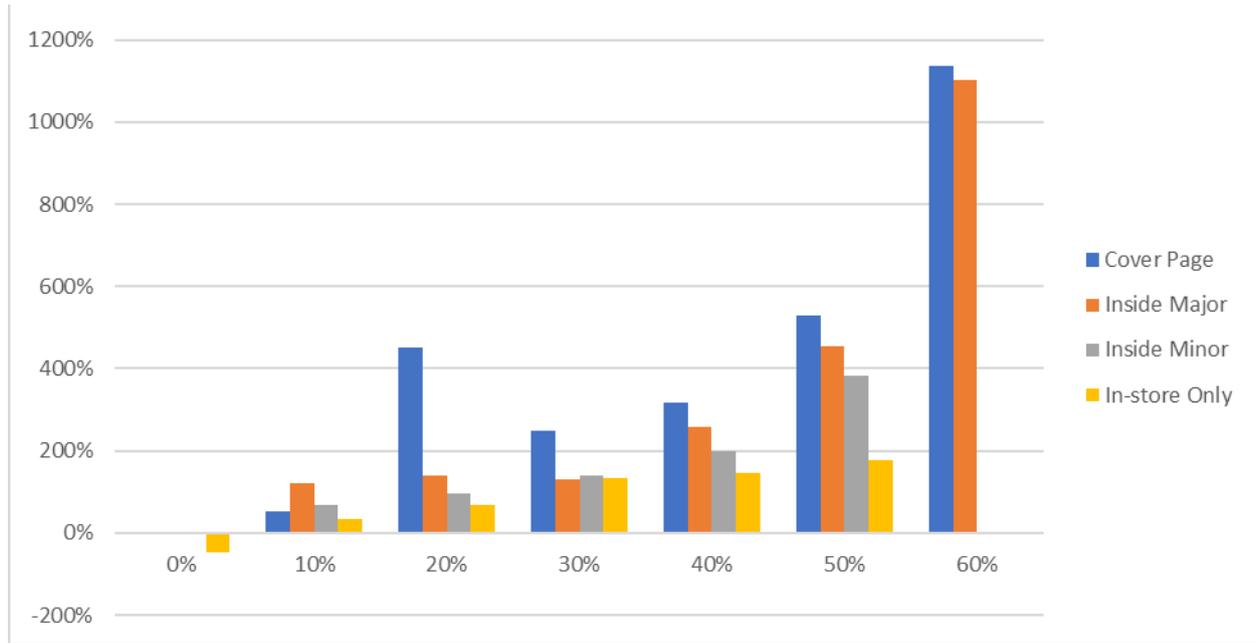
catalogue with average or shallow discounts (i.e., 30% or lower), there is a sales uplift effect, but not to the same extent.

Figure 9 Sales Uplift % by Discount Depth for Catalogue vs. No Catalogue Support



Next, we examine sales uplift across different catalogue locations at different discount depths. Clustering the discount depths as deep discount (40% off or more) vs. shallow discount (up to 40% off), results showed that products with deep discounts produced only marginal difference in sales uplift across catalogue locations. On the other hand, if a product offered only a shallow discount depth, there was a greater difference in sales uplift between the catalogue locations. Cover page generated the highest sales uplift, followed by inside major, then inside minor. In other words, there seems to be an inverse relationship between discount depth and catalogue location. The only exception being at 30% discount, as cover page generated the highest sales uplift; but for inside major, and inside minor, these two catalogue locations generated the same sales uplift as in-store only.

Figure 10 Sales Uplift % by Discount Depth Across Catalogue Location



Lastly, we looked across the categories and catalogue locations. For cover page, the highest sales uplift % was generated by cold beverages. Household products generated the highest sales uplift % for both inside major and inside minor, as well as in-store only.

Table 21 Sales Uplift % by Category Across Catalogue Location

| Category | Cover Page | Inside Major | Inside Minor | In-store Only |
|----------------|------------|--------------|--------------|---------------|
| Bakery | 341 | 305 | 198 | 121 |
| Cold Beverages | 929 | 289 | 52 | 30 |
| Confectionery | 371 | 149 | 63 | 22 |
| Dairy | 371 | 209 | 135 | 5 |
| Delicatessen | 818 | 104 | 79 | 53 |
| Food | 384 | 156 | 139 | 7 |
| Frozen | 674 | 431 | 172 | 124 |
| Household | 321 | 564 | 402 | 340 |
| Nuts & Snacks | 378 | 198 | 93 | 38 |
| Personal Care | 343 | 490 | 265 | 72 |
| Pet Care | 278 | 216 | 172 | 38 |
| Average | 562 | 386 | 266 | 73 |

*Category with highest sales uplift % is shown in bold

Discussion and Contribution

Discussion

Table 22 Results Summary

| RQs | Findings | Implications |
|-----|----------|--------------|
|-----|----------|--------------|

| | | |
|---|--|---|
| <p>RQ1: What is the impact of discount depth, catalogue location, and product classification on sales quantity, and what is the interaction effect?</p> | <p>For main effects, only discount depth and catalogue location had a statistically significant effect on sales quantity. The relative impact of discount is much greater on retail sales compared to catalogue location.</p> <p>There was a statistically significant three-way interaction between discount, catalogue location, and product classification.</p> | <p>Retailers and manufacturers should not focus too much on where the product is promoted in the catalogue but rather on the discount depth.</p> |
| <p>RQ2: What is the sales uplift (in quantity sold) of a product promoted in a catalogue, and how does the sales uplift differ across catalogue locations?</p> | <p>On average, catalogue support generated a 140% sales uplift. Compared to in-store promotion without catalogue support, cover page generated an average of 194% sales uplift, followed by inside major at 116% uplift and inside minor at 109% uplift.</p> | <p>Cover page would typically generate the highest sales uplift. However, discount depth would influence sales quantity.</p> |
| <p>RQ3: How does the sales uplift for catalogue-advertised products differ across hedonic vs. utilitarian product categories?</p> | <p>Cover page generated the highest sales quantity for both hedonic and utilitarian. Utilitarian products generated a higher sales uplift for inside minor than inside major.</p> | <p>Manufacturers of utilitarian products could save on their trade promotion deals in obtaining an inside minor catalogue location, rather than paying more for inside major.</p> |

This study examined the effect of discount, different catalogue locations (cover page, inside, or in-store only) and product category (hedonic or utilitarian) on retail sales quantity at the product level. Findings indicate that there is a significant interaction between discount, catalogue location, and product classification, which would result in higher sales quantity. This is in line with previous studies showing that the main function of catalogue promotions is to increase short-term sales

(Narasimhan et al., 1996; Gázquez-Abad & Martínez-López, 2016; Dunn, 2018). Our findings also suggest that the effect of discount is much greater in increasing the retail sales quantity, as compared to the effect of catalogue location and product classification. This is unsurprising, as price is one of the main factors influencing consumers' purchase behaviour.

Results from our study contradict several industry beliefs and assumptions. For example, when products were promoted at 50% discount, both the cover page and inside major generated similar sales quantity. This contradicts the general industry belief that cover page is the best catalogue location to maximise the sales level. The findings are summarised in Table 22.

Given the high costs and widespread use of catalogues, both academics and practitioners should be interested in developing a better understanding of how catalogues affect retailer sales performance.

Contribution to Academic Literature

By utilising a natural experiment, our study significantly advances our understanding of the role of catalogue promotions as a marketing tool to increase sales. One of the strengths of this paper is the disentangling of different catalogue locations (cover page, inside as major, inside as minor, or in-store only), rather than considering the catalogue as a whole (e.g., Gijsbrechts et al., 2003; Mulhern & Leone, 1990). The study contributes to reducing the knowledge gap in the print media promotion literature. The variability in the sales uplift results shows that consumers' attention levels differ across each catalogue location, with the cover page having the highest exposure and sales quantity. This is in line with consumer gaze theory. The cover page is likely to receive higher attention and fixation, as it is the initial page of the catalogue that consumers read.

A strength of this paper is that the data differ from those of the usual market research consumer panel surveys. Using the retail buyer's promotional plan, which provided context to the results, we were able to analyse the transactional data in more detail. For example, it is understood that one market-leading soft drink brand is rarely promoted at 50% discount and placed on the cover page. This is to avoid a price war between supermarket chains, which would erode profit margins, making it financially non-sustainable for retailers and manufacturers. Therefore, when Soft Drink Brand A was promoted on the front page, there was an unusually high sales uplift (more than 1,230% increase in sales quantity). Without the retail buyer's insight, we would have removed this product as an outlier. Furthermore, I was given proprietary access to the practice and the decision-making process of the retailer, which provided additional insights into catalogue planning and production process.

Contribution to Industry Practice

Past research in the management and marketing literature has shown that managers often base their decisions on intuition, rather than on facts and evidence (Bogomolova et al., 2017; Covin et al., 2001). Some strongly held industry beliefs have become self-fulfilling prophecies. For example, to replicate the high sales results of their previous promotions, retail buyers believe that the cover page is the only catalogue location to promote their products (Tan et al., 2021). Therefore, managers should base their decisions on evidence and data, not beliefs or blind adherence to de facto practices. The results of this study answer this call by testing common retailers' and manufacturers' beliefs and providing robust empirical evidence.

A typical industry practice is to feature half-priced (50% discount) products on the cover page to generate a sales uplift, especially if the product is a market-leading brand (Tan et al., 2022). However, even without catalogue support, there would have been an increase in sales level due to the deep discount. This is evident from our findings, which showed that at 50% discount, both cover page and inside major placements generated similar levels of sales quantity.

In addition to increasing sales quantity, another function of the catalogue is as an advertising tool, which may help retailers build their mental availability and nudge consumers' propensity to purchase the product (Romaniuk & Sharp, 2016). This is evident through the similar sales levels when the product is promoted in the catalogue, as compared to in-store only. For example, at 20% discount, the sales quantity of inside catalogue minor is relatively similar to in-store only. Ieva et al.'s (2022) study also found that price discounts are no longer the main driver for consumers to read catalogues. Therefore, retailers and manufacturers could utilise catalogues as an additional avenue for advertisements and communications, rather than only price discounts.

Manufacturers could budget their trade promotions more effectively knowing that catalogue location has a lesser impact on sales uplift. The ANOVA results showed that discount depth is more effective in influencing sales quantity than catalogue location. Therefore, manufacturers could focus more on providing promotions with deeper discounts than competing and paying for being on the cover page of the catalogue.

Limitations and Future Research

Despite the contributions generated by our study, there are several limitations that may limit the generalizability of the results. First, given that our study required the cooperation of a supermarket chain and its retail buyers – thus involving several data confidentiality and feasibility issues – it was not possible to analyse multiple supermarket chains. Future research might seek new avenues to collaborate with multiple supermarket chains and/or across countries. Moreover, the dependent

variable of our data was unit quantity, rather than sales dollar revenue, because it was not feasible to ensure the same product pricing across all stores. Future studies could use sales dollars as a dependent variable to strengthen their analysis.

Moreover, our retail scan data were based on a supermarket chain, which may not replicate well across different industries, such as department stores, pharmacies, or fashion houses, all of which use catalogues. One industry report (Real Media Collective, 2019b) has shown that consumers ranked catalogues as among the most useful media when making purchase decisions, especially for toys, cosmetics and toiletries, fashion, children's wear, groceries, and alcohol. Therefore, future research could examine catalogues from these sectors. However, legal or regulation processes and requirements may differ across industries and countries.

It is important to note the confounding factors that were beyond our control, such as in-store promotion support (e.g., end-of-aisle displays, window posters) and out-of-store support (e.g., TV, radio, newspaper, social media, and billboard ads). Some of the typical industry practices were also considered as confounding factors: (a) products with deep discounts were promoted on the catalogue's cover page (also known as loss leaders). Hence, products promoted on the cover page were typically 50% off; (b) products promoted on the cover page were more likely to have in-store promotion, such as end-of-aisle displays; and (c) not all stores have suitable end-of-aisle fridge and freezer displays. Hence, only ambient products could be guaranteed with end-of-aisle display support.

Furthermore, inside the catalogue is a 'catch-all' promotion placement for the majority of the products. As there are limited spaces on the front and back pages, the majority of catalogue-support products are promoted inside the catalogue. Future research could investigate the differences in sales level for products placed in the first few pages of the catalogue, as compared to the last few pages. However, through the audit of catalogue content study, we know that catalogues are typically arranged in categories. Therefore, manipulation of products on different pages inside the catalogue might not reflect the real world.

Lastly, there could be seasonality effects, which would not be captured in this dataset. Since this study only involved one calendar year's sales data, no seasonal patterns could be accounted for during the analysis. Hence, future research could expand the timeframe of the dataset to capture multiple years of retail scan data.

In summary, to better understand the effects of catalogues, we identify the following areas for future research:

- Eye-tracking data of catalogue readers correlated to their store sales receipts.

- Demographics of consumers across different age groups, education levels, and genders.
- Manipulating other in-store support (e.g., end-of-aisle displays) and out-of-store support (e.g., TV, radio, billboards).
- Replicating the study in different retail sectors and expanding the data timeline.

Conclusion

To summarise, the aim of our study was to gain a better understanding of the sales effectiveness of catalogue promotion when products are placed at different locations in the catalogue, at different discount depths and classifications (hedonic vs. utilitarian). A unique collaboration between a supermarket chain (with 74 stores in Australia) and retail buyers allowed us to collect retail scan data of products promoted across various catalogue locations and discount depths. This natural experiment was unique, as the data captured was from the retail buyer's promotion planner rather than a panel provider, which typically does not include any context related to promotion decisions. An ANOVA model was used to analyse the effect of catalogue location, discount depth, and product classification on the retail sales quantity. Our findings showed a significant interaction between catalogue location, discount, and product category on retail sales quantity. There was a larger effect between discount and catalogue location, as compared to discount and product classification. Lastly, looking at the main effects, discount depth generated the highest sales uplift, followed by catalogue location, whereas product classification was not statistically significant in increasing retail sales quantity. This research is a significant step forward for practitioners and researchers in understanding how catalogues continue to have a significant influence on shopper behaviour, even in this age of digital promotions.

CHAPTER 5: DISCUSSION, CONCLUSIONS, LIMITATIONS AND FUTURE RESEARCH

This chapter concludes the thesis. It summarises the three studies, their main findings, and presents the contributions of the thesis to academic knowledge and implications for industry practices. This chapter ends with the limitations of the current studies and an agenda for future research arising from the thesis.

The aim of this thesis was to advance knowledge on supermarket catalogues. Catalogue advertising is one of the oldest forms of marketing, and it remains a highly effective sales driver with the highest weekly reach compared to other mass media channels (i.e., magazines, radio, newspapers, free-to-air television) (Real Media Collective, 2022). Catalogues remain relevant even in the current digital age, as 55% of Australians who read a printed catalogue in the last seven days made a purchase after reading it (Real Media Collective (2019a). Catalogue production is a highly resource-intensive process for retailers, due to short weekly promotion intervals, a competitive retail market, and expensive production and distribution costs. As advertising moves towards digital platforms, the traditional print supermarket catalogue is under constant scrutiny regarding its prevalence and effectiveness. Despite advances in digital media, print catalogues remain relevant to consumers, as they comprise one of the main sources of information for consumers when they seek promotions (Inside FMCG, 2021).

This thesis includes three studies, each addressing a distinct question regarding supermarket catalogue production and consumption:

1. Who uses supermarket catalogues?
2. What are the typical contents of supermarket catalogues?
3. What is the sales effectiveness of supermarket catalogues?

Key Findings from the Studies

Study 1 aims to understand which psychographic and behavioural characteristics would lead to a higher catalogue usage, which informs retail practitioners about the readership audience of catalogues. Study 2 aims to create a benchmark of the current practices in supermarket catalogues and how they vary across five countries, which informs the current practices and key trends in supermarket catalogues from a visual media perspective, rather than solely as a tool for price promotion, as is common in previous catalogue studies. Study 3 aims to understand the sales effectiveness of catalogues, specifically how product position in a catalogue layout could affect sales of promoted products. This reduces the knowledge gap in the print media promotion literature, and help debunk the myths that have been long-held by industry practitioners.

In sum, this thesis has found some novel and surprising results, as well as replicated findings in the literature. Results showed that the function of catalogues has evolved over time, beyond the function of a price discount tool; that it could serve as a brand advertising media channel. However, if retailers want to obtain a high sales uplift, then the product's discount depth should take priority (with the location being secondary), and it should be called out prominently in the

catalogue. Catalogue promotion works collectively with other promotional activities and cannot be siloed. Hence, it has the ability to increase the brand's mental and physical availability.

Table 23 summarises the aims, data, methodology, and key findings from all three studies.

Table 23 Summary of the Three Studies Forming the Thesis

| | Study 1 (Chapter 2) | Study 2 (Chapter 3) | Study 3 (Chapter 4) |
|-----------------------------|---|---|--|
| Aim | To understand the demographic, behavioural, and psychographic characteristics of consumers who use supermarket catalogues. | To synthesize current practices in supermarket catalogue design, identify key trends in content, composition, format, price discounts, and layout. | To examine the sales effectiveness of supermarket catalogues across different catalogue placement and product categories. |
| Data Collection | 506 online survey responses, from a sample representing the adult population of South Australia. | 39 catalogues from 13 supermarket chains in five countries (Australia, Malaysia, New Zealand, South Africa, and the United States) | Natural experiment using retail scan data of 18,878 SKUs across 11 categories, from 74 stores of a large supermarket chain in Australia. |
| Dependent Variables | Self-reported usage of catalogues | Content, composition, format, price discounts, and layout of catalogues | Sales uplift in unit quantity |
| Independent Variable | Psychographic factors; Demographics | Prevalence of promotion; Depth of promotion; Attribute claims | Catalogue page placement; Discount depth; Product category |
| Analysis | Binomial logistic regression | Content analysis | ANOVA comparing sales of the same SKU at different promotion conditions |
| Results | Supermarket catalogue users are more likely to have one or more of these characteristics: being price-conscious, deal-prone, rarely switch brands, and have low income. | On average, catalogue promotions were valid for 8 days, promoted 237 items over 22 pages, with a discount depth of 26%. Approximately 41% of the products in a catalogue <i>did not</i> indicate any discounts or monetary savings, indicating a new trend in catalogue objectives beyond solely informing about price discounts. | There is a significant interaction between discount, catalogue location, and product classification, resulting in higher sales quantity. The cover page generated the highest sales level, as compared to other catalogue locations. |

| | | | |
|--|--|--|--|
| | | | Products promoted on the cover page generated 399 units higher than inside major, 479 units higher than inside minor, and 840 units higher than in-store only. |
|--|--|--|--|

Based on the findings of the three studies, this thesis makes the following methodological, literature, and industry-based contributions to knowledge about supermarket catalogue promotions, as well as providing rigorous evidence-based insights into how to improve the sales effectiveness of this highly prevalent marketing tool.

Contribution to Academic Knowledge

Methodological Contributions

Real-life natural experiment

Through a close collaboration with an industry partner this thesis follows an innovative method where the PhD candidate was embedded with an industry partner (as a full-time research analyst) and was closely mentored and supported by an industry advisor from the same organisation. This enabled a true natural experiment to be designed and executed. Study 3 was one of the few studies resulting from an in-depth collaboration with industry and enabled the author to identify the confounding factors, thus producing a cleaner and true-to-practice result. The author was able to access confidential data, such as transaction level sales data and catalogue promotion schedule and layout details (this data is very rarely available to academic researchers), as well as enjoy commercial-in-confidence conversations with retail buyers and marketers to discuss research design and results. Working alongside the retail buyers provided context and a deeper understanding of the results. The industry collaboration also allowed a first-hand view of the resource-intensive catalogue production process, which highlights the importance of catalogue promotion within the supermarket industry. Breaking down the silos among marketing managers, retailers and academic researchers (as demonstrated through the process of this thesis) has enabled constructive discussions and facilitated more effective catalogue promotion practices in the industry partner (once the results were presented). This highlights the importance of real-world data and experiments, as noted by Ieva et al., (2022, p. 10.), who state “*our study points to the importance of developing field experiments in real-life scenarios in addition to observational or lab studies*”. In summary, the methodological innovations of this thesis are (1) greater ecological validity of the results, and (2) the process of planning and executing a natural experiment with an industry partner.

Content analysis method

This thesis extends our knowledge of catalogue content and composition using the content analysis method (Kassarjian 1977; Krippendorff 1980; Neuendorf 2002). Content analysis is frequently used in journalism, social psychology, political science, and communication research (Kassarjian 1977), and although this method is emerging in consumer research (Charlton et al., 2015; Johnston et al., 2017; Cameron et al., 2015; Jahns et al., 2014), it has not yet been trialled in

retail promotions research specifically. For this thesis, an audit of catalogue content from around the world was conducted, which showed that a typical supermarket catalogue promotion was valid for eight days, promoting 237 items over 22 pages, with an average discount depth of 26%. This is in line with past literature showing that average discount depth in-store was 25% to 30% (Bogomolova et al., 2015; Caruso et al., 2018; Tan et al., 2018). This study has showcased the benefits of implementing an interdisciplinary research method such as content analysis to improve the rigour of data collection and analysis and advance the quality of evidence in the retail marketing field.

Literature contributions

Consumer gaze theory

In order to process a scene, consumers move their eyes and focus on the visual stimuli or object. When consumers are paying attention to a particular object in a print advertisement, they are processing the information; thus, the likelihood of the object being remembered is increased (Wedel & Pieters, 2017). Consumer gaze theory has been widely considered in the visual and print media literature (Orquin et al., 2018; Rayner, 2009; Wedel & Pieters, 2015). As consumers are attracted to a particular object on a print ad, it increases their memory of that object and so they are more likely to remember it. Attention is central to processing visual stimuli. In contrast, failure to capture consumers' attention reduces the effect of the print ad. For example, if consumers notice an ad for Coca-Cola while reading the catalogue, the brand 'Coca-Cola' is refreshed and its propensity to come to mind is increased. During the next purchasing situation, consumers are more likely to recall the 'Coca-Cola' brand within their repertoire set. This in turn increases the purchase likelihood of 'Coca-Cola'. As consumers' gaze falls onto an object, they are exposed to that stimulus, which could affect their perception. The brand is 'refreshed' in their mind, which increases the brand's mental availability within the consumer's repertoire, thus improving the brand to be recalled during a purchase situation (see subsequent discussion).

Applying consumer gaze theory as found in the visual media literature to the price promotion tool of catalogues demonstrates the usefulness of multidisciplinary approaches to research. Widely used in the print media literature, consumer gaze theory is an emerging way of understanding price promotion tools in the retail industry. This research is original in applying consumer gaze theory to understanding and evaluation of catalogues, as a form of visual media. Catalogues contain a collection of images and text depicting products, prices, and promotions. As consumers read the catalogue, they are scanning the pages and paying some degree of attention to the product images and text, either in a bottom-up or top-down process (Orquin & Loose, 2013). Catalogue users who rarely switch brands might skim the catalogue just to see if their favourite brand of soft drink is on promotion, thus using the bottom-up process, as their favourite brand would jump out at

them and they would be able to quickly recognise and notice it. On the other hand, low-income catalogue users might read the entire catalogue in more detail, searching for products that would give them the most value, which is the top-down process, as they are intentionally seeking out discounts and wanting to save money. This indicates that people may gaze at and read catalogues differently, which can impact their attention and possibly mental availability. Therefore, the design and layout of catalogues must be carefully considered, as they can influence consumers' attention and their purchase decision.

Mental availability

Catalogue advertising is a form of 'weak' advertising, as the catalogue promotion builds, refreshes, reinforces, and nudges consumers' memories (Ehrenberg et al., 2002; Romaniuk & Sharp, 2013), rather than persuading consumers to change their behaviour. This is in contrast to the strong theory of advertising, whereby advertisements work by persuading the consumer to buy the brand by providing a unique selling proposition or reason to buy (Jones, 1990; Jones, 1997). This form of advertising explicitly aims to persuade consumers that their product is better or best or to provide a hard selling argument or message in their ads (Jones, 1990; Jones, 1997). When a consumer sees a brand advertised in the catalogue, this increases the brand's presence, relevance and prominence (Romaniuk & Sharp, 2016). As consumers read the catalogue and come across a brand, for example Coca-Cola, they would have paid some attention in order to notice the brand, which will then reinforce and refresh the brand name 'Coca-Cola' in their memory, thus increasing the brand's mental availability. This makes the brand more salient and increases its likelihood of being recalled by the consumer during a purchase situation, known as mental availability (Romaniuk & Sharp, 2016). Furthermore, the combination of shelf-talkers and the physical availability of the product in-store could have an impact on sales. All of the products featured in the catalogue will be supported with shelf talkers in-store. The presence of the 'Coca-Cola' shelf-talker is likely to be noticed by consumers as they walk around in the supermarket, which could also increase the brand's mental availability. The bigger the brand is in one's mind, the higher the likelihood of it being noticed or recalled during a purchase situation.

Consumers rely on part of their memory to help them make a purchase decision. These memories consist of nodes that are associated with certain cues (for details, see Anderson & Bower, 1979). For example, when a person views a Coca-Cola promotion in a supermarket catalogue showcasing monetary savings, an association between 'Coca-Cola' and 'price discount' is formed in that person's mind. Then, when that person is in the supermarket making a purchase decision related to soft drinks, he/she is more likely to recall the brand 'Coca-Cola' and purchase the product. Hence, the catalogue is an effective advertising tool as it increases a brand's mental availability and thus could also increase the brand's sales level.

Health consciousness

A novelty of Study 1 was including health consciousness as an independent variable as part of the psychographic determinants of catalogue usage. The research sought to determine whether more health-conscious consumers are less likely to use catalogues than consumers who are less health conscious. Although the results were not statistically significant, testing health consciousness was an important innovation. Consumers worldwide are becoming more aware of their health and well-being, especially during and post the COVID-19 pandemic (NielsenIQ, 2022b). The retail food environment, such as supermarkets, is a key determinant of consumers' purchasing and eating behaviour. In Australia, 84% of the population stated that they buy food and products for everyday use in supermarkets (Statista, 2022a). As discussed previously, catalogue promotions are a key marketing tool used by supermarkets. In other words, catalogues play a major role in the retail food environment, as catalogues are one of the key interfaces between consumers and the food system (Cameron et al., 2015).

Study 2 results showed that only 4% of the promoted items in catalogues worldwide feature fruit and vegetables. Although it would be good to have catalogues promoting healthy food items such as fruit and vegetables, unfortunately this is not reflected in the real world. Studies have found that supermarket catalogues are promoting unhealthy diets and eating behaviours, as the food and beverages promoted were not in line with national health guidelines (Cameron et al., 2015; Ethan et al., 2014; Jahns et al., 2014; Martin-Biggers et al., 2013). Catalogue items are highly correlated to the product displays in-store; products promoted on the cover page and as major features within the catalogue, are more likely to be supported with end-of-aisle displays and other marketing activities (e.g., TV, radio, outdoor advertising). This is confirmed through commercial-in-confidential conversations with retail buyers. Larger manufacturers have the capability to secure shelf space by paying retailers in trade promotion spend, which in turn increases the retailer's revenue. Major large manufacturers produce most of the leading fast-moving consumer goods brands, which belong mostly to the discretionary food group, such as The Coca-Cola Company (manufacturing brands including Coca-Cola), Nestle (Maggi, Nescafe, KitKat), PepsiCo (Pepsi, Lays, Mountain Dew, Doritos), and Mondelez International (Cadbury, Oreo).

Contribution to advancing the catalogue promotion literature

In Study 3, the effects of discount depth and catalogue placement were isolated and compared to the same item promoted in-store only without catalogue support. This is a major advance in knowledge regarding catalogue promotion. When comparing products promoted in-catalogue at different discount depths, there is a higher sales uplift compared to in-store promotion (average 336% vs. 85%). This could be due to the product gaining additional mental availability (as discussed above), as consumers read the catalogue and become more aware of the product.

Furthermore, Study 3 isolated various catalogue locations in order to analyse the sales effectiveness of the same item promoted at each location. Results showed that cover page generated the highest sales uplift (an average of 456% increase in sales), followed by inside major (367%), inside minor (178%), and in-store only without catalogue support (85%). This might be because the cover page has a higher likelihood of capturing the consumer's attention, as the front or back pages will most likely be read by consumers, as compared to the pages inside the catalogue. On the other hand, if the product is featured as a smaller image within the catalogue, it has a lower chance of capturing the consumer's attention.

Practical Implications for the Retail Industry

Industry contributions

This thesis makes an important contribution to knowledge by providing evidence to validate or disprove industry and common beliefs.

Catalogue promotion does not exclusively appeal to certain demographics

Retailers have long believed that catalogues are read only by an older population and/or housewives (Integer US, 2011; Harmon & Hill, 2003; Ha & Im, 2014). In contrast to this widespread belief, the results of this thesis showed that there is no statistically significant effect of gender or age on catalogue usage. This refutes past studies stating that female consumers, compared to male consumers, were more likely to search for and use coupons (Integer US, 2011; Harmon & Hill, 2003; Ha & Im, 2014). Therefore, this highlights that catalogue promotions are relevant to everyone, and that catalogue users should not be segmented or targeted based on demographics. In short, everyone is a potential customer.

Furthermore, this thesis answers the call to provide a psychological explanation and understanding of consumers' responses to supermarket catalogues (Woo et al., 2022). The thesis results show that typical catalogue users are price-conscious, deal-prone, low-income, and rarely switch brands. This supports past research suggesting that price-conscious consumers are more likely to use catalogues than consumers who are not price-conscious (Ailawadi et al., 2001, Blattberg et al., 1995; Kwon & Kwon, 2013; van Lin & Gijbrecchts, 2016). The current findings are in line with a study by Kwon and Kwon (2013), which found that price-conscious consumers read flyers to look for cheaper prices and paid more attention to the brands they are loyal to. Hence, this study suggests that the driver for catalogue readership is mostly based on psychographics rather than age and gender, thus refuting earlier claims (Integer US, 2011; Harmon & Hill, 2003; Ha & Im, 2014).

Print catalogues are not going away (yet)

This thesis empirically demonstrated that catalogues remain important and relevant in this day and age of digital technology. Widespread views in popular industry media are stating that print catalogues are being phased out as the world transitions into the digital age (B&T, 2013; Dawson, 2016; Soloman, 2021). The common belief is that print catalogues are no longer relevant due to changing consumer behaviour; that is, consumers are shifting to online platforms and are no longer reading print catalogues. However, contrary to this belief, Study 1 revealed that 76% of Australian grocery shoppers have read at least one catalogue in the past four weeks, while 54% of consumers read every page of the catalogue. The findings from Study 1 support industry research showing that 86% of Australians have read a print supermarket catalogue in the last four weeks (Real Media Collective 2022). Therefore, there is evidence from both academic and industry data collection that print catalogues remain widely relevant and continue to be read by consumers.

Importance of evidence-based decision making

This thesis showcased the importance of making managerial decisions based on empirical evidence, rather than on managerial beliefs and assumptions, a pattern commonly seen in the retail industry. As seen in the recent industry example (Chapter 1), when a retailer stopped distributing their print catalogues to households, their market share dropped compared to its competitors who continued their paper-based catalogue distribution (Real Media Collective, 2022).

To the best of my knowledge, Study 3 is the first to isolate how different product placements in catalogues influence product sales levels. The findings from Study 3 addressed the gap in the literature whereby past studies had not analysed the sales level of the *same product* when promoted in *different catalogue locations*. By manipulating the catalogue layout from promoting many items and shallow discounts versus promoting a few items at deeper discounts, Mulhern and Leone's (1990) study found only marginal increases (ranging from 3% to 4%) in the sales level, whereas Gijbrecchts et al.'s (2003) study showed a marginal increase in-store sales (+7%) and number of customer transactions (+6%) when the overall catalogue discount depth was increased from 15% to 25%. In this thesis, results showed that when a product is promoted inside the catalogue as a minor feature with a 20% discount, the sales uplift level is relatively similar to when the product is promoted in-store only without catalogue support. This indicates that the shelf talker in-store (physical availability) was sufficient enough to capture the consumer's attention and increase sales, even without the additional support of a catalogue (mental availability). The physical availability of the product on the shelf, along with the eye-catching shelf talker, was able to capture the consumer's attention and increase purchase likelihood. This stresses the importance of physical availability. So, even if the products are supported with catalogue promotion, if consumers are not able to find and notice the products in-store, there would be no sales transaction. Through commercial-in-confidence conversations with retail buyers, it should be noted that manufacturers

pay retailers significant fees to feature their products in catalogues. Therefore, if a manufacturer has a smaller budget for trade promotion and marketing advertising, they might possibly obtain a similar sales uplift by promoting their products at 20% discount in-store only without catalogue support, as compared to promoting inside the catalogue. Furthermore, retailers could potentially charge different rates for different catalogue placements due to differing effects on sales quantity. That is, catalogues could be treated the same as advertising in print media. In turn, manufacturers could choose specific placements that would have a relatively similar efficacy at a lower rate charged by specific retailers.

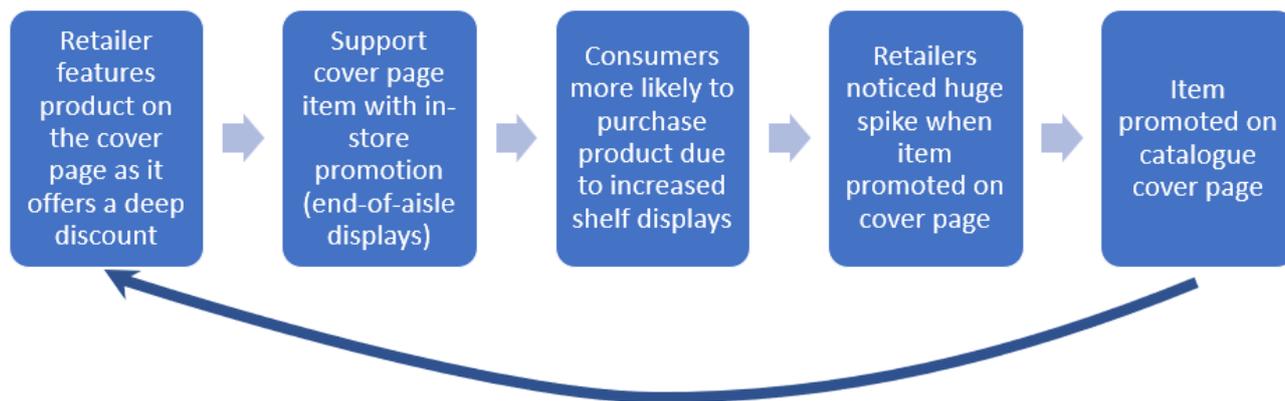
Study 1 showed that catalogue users are more likely to be price conscious and deal prone. However, results from Study 2 showed that approximately 41% of the catalogue items did not display any savings amount. Therefore, managers must begin ensuring that if their products offer monetary savings, the discount amount needs to be prominently displayed. This is to ensure that the catalogue promotion is relevant and appealing to its users, which could attract them and increase their likelihood of entering the store and making a purchase.

Self-fulfilling prophecy

It should be noted that in general, products promoted on the cover page are the retailer's 'hero promotion'. That is, products with deeper discount depth are typically featured on the cover page rather than inside the catalogue. Moreover, when retailers make decisions to feature products on the cover page, they are more likely to support these products with in-store promotions, such as end-of-aisle displays. This further increases the physical availability of the promoted products (normal shelf space + additional end-of-aisle displays), which would *naturally* increase the product's sales level. As consumers walk around the supermarket, they would notice the additional shelf display of the promoted products, which increases the likelihood of purchase and sales level. This has been verified through commercial-in-confidence conversation with retail buyers.

Therefore, this becomes a self-fulfilling prophecy for cover page items, with retailers attributing the sales uplift primarily to the product's catalogue location on the cover page. The expression 'self-fulfilling prophecy' is defined as "a false definition of the situation evoking a new behaviour which makes the originally false conception come true" (Merton, 1968, p. 477). Retailers strongly believe, and expect, that the cover page item will generate a sales uplift due to its catalogue location. But in reality, the sales uplift is most likely due to the increased mental and physical availability of the product in store (see Figure 11).

Figure 11 *Self-fulfilling (Promotion) Prophecy*



Evolving catalogue users

As consumers are becoming more budget conscious, especially during and post the COVID-19 pandemic and the increased inflation rate and cost of living across different markets, featuring more deals and promotion-related messages in catalogues might prove beneficial for consumers. This could range from the typical dollars-off discounts to multi-buy deals to everyday low-price products. Results from Study 1 revealed that catalogue readers are deal prone. The benchmark of catalogue content (Study 2) showed that, on average, while 27% of the promoted products are dollar-off deals, 11% are multi-buy deals. Therefore, if there is a price discount item, managers should start emphasizing the deals and calling out the discounts in the catalogue in order to appeal to the deal-prone consumers and increase the likelihood of their entering the store.

Catalogue promotion is a vehicle to build both mental and physical availability

Looking at the sales uplift percentage results from Study 3, there are three major implications for retailers and manufacturers:

1. Promotion with a catalogue is better than without a catalogue.
2. Cover page is the best location, followed by inside major, inside minor, and in-store only without catalogue support.
3. When discount depth increases, the difference in sales uplift between catalogue locations diminishes.

Firstly, regardless of discount depth and catalogue location, the results showed that products featured in catalogues generated higher sales uplift, as compared to in-store only without catalogue support. Although this result comes as a no surprise to many, this thesis confirms that, even though catalogues are one of the oldest marketing tools, they remain an effective tool in generating sales level.

Secondly, looking at the different catalogue locations, products featured on the cover page generated the highest sales uplift (456% increase on average), followed by inside major (367% increase on average) and inside minor (178% increase on average). This mirrors the strongly held belief within the retail industry that cover page is *the best* catalogue location to generate sales uplift.

Thirdly, results showed that as the discount depth increases, the difference in sales uplift between catalogue locations diminishes. As the product's discount depth increases, there is less reliance and emphasis on the location (i.e., which page) in which the product gets featured in the catalogue, as the sales uplift does not differ significantly. This could be due to the knock-on effect from the actions taken by the retailers. Through commercial-in-confidence discussions with retail buyers, it was found that retail managers are most likely to support any, if not all, catalogue products. However, due to limited store space, they tend to favour products with certain criteria: a) deep discount or b) on the cover page.

Table 24 *Additional Mental and Physical Availability Support from Retailers*

| Catalogue location | Discount depth | Additional mental and physical availability support from retailers |
|---------------------------|-----------------------|---|
| Cover page | Shallow | Yes |
| Inside | Deep | Yes |
| Cover page | Deep | Yes |
| Inside | Shallow | No |

If the manufacturer is capable of offering a deep discount (40% off or more), as long as the product is in the catalogue, the manager should not worry about which location the product is featured in. There is less reliance on catalogue location, as a deeply discounted product would gain additional marketing support that helps increase the product's mental and physical availability. Through commercial-in-confidence discussions with retail buyers, it was found that when a product offers deep discount – no matter which catalogue location the product is featured in – the retail manager is most likely going to support the product by increasing the product's prominence in-store, such as with end-of-aisle display, TV advertising, and radio advertising, among others. Therefore, for deeply discounted products, catalogue location is not a significant factor in increasing the sales uplift, as there are other mental and physical availability tools that come into play. Due to increased advertising channels, consumers are more likely to notice the product, which would then increase their likelihood of entering the store and making a purchase. This is in line with a previous study (Gázquez-Abad & Martínez-López, 2016) showing that catalogues can play the role of an advertising tool, rather than simply provide information about price discounts.

On the other hand, if the manufacturer is only able to offer a shallow discount (30% or less), there is a greater reliance on being on the cover page, as that page generates the highest sales uplift as compared to other catalogue locations. Manufacturers should make an effort to be featured on the

cover page if they can only afford to offer shallow discounts. This may be because products that are featured on the cover page – no matter the discount depth – are most likely to be supported by the retailers. Therefore, if manufacturers are able to offer deep discounts, they should place more emphasis on getting onto the cover page in order to increase their sales uplift. This is because if shallow-discounted products are placed inside the catalogue, manufacturers have a lower chance of gaining additional in-store and out-of-store support from retailers, which would result in a lower sales uplift.

In short, catalogue promotion is more than just showcasing a product image on a piece of paper. When a product is featured in the catalogue, this triggers a series of actions by retailers that increase the product's physical availability (e.g., end-of-aisle and tower displays) and mental availability (TV and radio advertising). Catalogue promotion is never isolated. For example, if Coca-Cola is spending their trade promotion money with Walmart supermarkets by offering a 50% discount off their 1.25L soft drinks range, Walmart will most likely communicate this promotion to consumers by featuring it in their catalogue, as well as supporting this promotion by making the product more prominent in-store (e.g., with end-of-aisle displays) and advertising it on TV and radio. In the real world, major catalogue promotions are unlikely to be without additional physical or mental support from retailers. Imagine Coca-Cola offering a 50% discount for their soft drinks range but not wanting Walmart to communicate this offer to consumers. This does not reflect the real world.

Limitations and Future Research

Although this thesis makes a significant contribution by linking the various aspects of catalogues and thereby improving the literature on this marketing tool, as with any study it does have some limitations. For example, it should be noted that the results of this thesis only hold under certain parameters, such as the supermarket industry and fast-moving consumer goods (FMCG). Below are several scenarios that future researchers might find worthwhile investigating.

Given that Study 3's natural experiment required the cooperation of a supermarket chain head office, it was not possible to conduct the experiment across competing supermarket chains or longitudinally across multiple years. Future research could extend the timeframe of the data a few years in order to account for any seasonality patterns. However, it should be noted that the logistic aspects of natural experiments could pose a significant challenge. At the same, confirmation of the findings in a different country and supermarket chain would be useful for commercial practice.

With advances in technology, there may come a day where print catalogues will have a lower readership than online catalogues. Due to printing costs, retailers are increasingly shifting their catalogues onto digital platforms (Ieva et al., 2022; Coles 2021). Therefore, it is important to replicate this research using online catalogues and determine whether its findings hold true for both digital and print catalogue formats – as well as when direct interactions through digital catalogues are enabled (i.e., a click to purchase in-catalogue).

Although the users, content, and sales effectiveness of catalogues were examined, capturing consumer attention was beyond the scope of this thesis. Future research could improve the robustness of results for Study 1 (catalogue users) and Study 2 (catalogue content) by using desktop computers with built-in eye-tracking devices (e.g., Tobii T120's) or head-mounted eye-tracking devices (e.g., the Tobii Eye Tracking Glasses) to track consumers' gaze. Past studies have used eye-tracking equipment to correlate gaze fixation and visual attention (Bogomolova et al., 2020; Caruso et al., 2018; Orquin & Wedel, 2020; Wedel & Pieters, 2015). By tracking a consumer's eye movement, it would be possible to conduct a correlation analysis between the catalogue user's profile and the focus area of the catalogue content, thus ensuring the relevance of the catalogue promotion against the user profile.

The current economic climate, with inflation rates increasing worldwide, puts pressure on consumers and increases their cost of living (Rushe et al., 2022). Now more than ever, consumers might be *more* inclined to use catalogues to search for deals and promotions. There could be a need for future researchers to identify any changes in the user profile of catalogue users. For example, over 50 years ago it was thought that females were more prone to price promotions than males because shopper profiles reflected traditional family roles (Blattberg et al., 1978; Webster, 1965), and it was also thought that older consumers were more likely to read catalogues (Burton et al., 1999). However, as gender roles have evolved, these variables no longer have such a strong effect on catalogue usage. Therefore, continual research must keep track of evolving trends in catalogue user profiles and usage patterns.

Another limitation of this thesis is its scope, as only catalogues from the supermarket industry were selected for examination. Future studies should replicate and expand this research into other sectors. The top 5 market segments, excluding miscellaneous, in catalogue distribution are grocery (34%), speciality retail (12%), pharmacy (11%), hardware (4%), and automotive (3.5%) (Real Media Collective, 2022). A replication of this thesis across those industries could examine which results generalise to other industries, thus enabling knowledge to be transferred over.

Lastly, the stock level of in-store products, which is beyond the author's control, could also affect the sales level results. Stock control and management is difficult in the retail world due to its fast-paced environment. As mentioned earlier, the physical availability of the product is as important as its mental availability. Without either of these, consumers would not be able to notice the product

and make a purchase decision. Therefore, future research should take note of the out-of-stock level in order to account for potential lost sales.

Thesis Conclusion

In summary, this thesis provides empirical knowledge about one of the most enduring forms of marketing: supermarket catalogues. As the media landscape shifts as a result of digital technology advancement, catalogues remain useful and effective. Compared to other traditional mass media, catalogues have the highest weekly reach (Real Media Collective, 2022). This thesis revealed that supermarket catalogues are more likely to attract an audience with certain characteristics, such as price-conscious, deal-prone, low-income, and less likely to seek variety. Yet, contrary to a common belief, catalogue promotions are relevant to everyone, no matter their age and gender. They no longer appeal to just females or older consumers. Lastly, this thesis sheds new light onto catalogues, showcasing that they have the potential to be used as a tool to increase both mental and physical availability, rather than solely in their primary role of price reduction advertising, thus increasing the value and purpose of catalogue promotion as an effective marketing tool for both retailers and manufacturers.

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Appendix A
Questionnaire

Thank you for agreeing to participate in this survey, which is about your awareness, knowledge and experience with supermarkets. There are no right or wrong answers; we are simply interested in your honest opinions. All your responses are anonymous and will remain confidential.

Do you or any member of your household work for a supermarket?

Please select one.

- Yes
- No

Have you purchased from a supermarket in the past six months?

Please select one.

- Yes
- No

How much responsibility do you have for buying household groceries?

Please select one.

- I do all the grocery shopping.
- I do most of the grocery shopping.
- I share the responsibility for grocery shopping equally.
- I only do a little bit of grocery shopping, but someone else in the household does more.
- I practically never do the grocery shopping.
- I don't know.

Please type in your postcode: ____

Are you ...?

- Male

- Female

Please type in your age: ____

How do you access a supermarket catalogue?

Please select all that apply.

- Print copy in mail box
- Print copy in PO box
- Print copy in-store
- From a website
- On mobile
- I do not use catalogues. [Exclusive]
- Other(s) (please specify)
- I don't know. [Exclusive]

In the last seven days, which of the following **supermarket catalogues** have you received in your mailbox or accessed online/on mobile?

Please select all that apply.

- Foodland (including Drakes, Romeo's, etc.)
- Coles
- Woolworths
- Aldi
- Costco
- IGA
- Foodworks
- Other Supermarkets (please specify)
- I do not receive catalogues.
- I don't know.

What did you do with the catalogues you received in the last seven days?

Please select only one option per brand.

- Read every page

- Briefly skimmed through the catalogue
- Briefly looked at front/back cover
- Did not read catalogue at all

How often did you check/read any of the supermarket catalogues in the **last four weeks**?

Please select one answer.

- Once in the last 4 weeks
- Twice in the last 4 weeks
- 3 times in the last 4 weeks
- 4 times in the last 4 weeks
- Never
- Don't know/unsure

Thinking of your most recent grocery shop, did you have:

Please select one answer.

- Print copy (written) shopping list
- Electronic (i.e., on mobile) shopping list
- Mental shopping list
- No shopping list
- Don't know/can't remember

Please tell us the extent to which you agree or disagree with each of the following statements.

Please select one option for each statement.

- I compare prices of different stores to get the best price.
- I compare the prices of different brands to be sure I get the best value for my money.
- I always check prices at the grocery store to be sure I get the best value for the money I spend.
- I always try to buy the brand that is on special.
- I am more likely to buy brands that are displayed at the end of the aisle.
- Catalogues influence me to buy the brands I would not normally buy.
- If I use the same brands over and over again, I get tired of them.
- I buy different brands to get some variety.
- I reflect about my health a lot.
- I'm very self-conscious about my health.

- I'm generally attentive to my inner feelings about my health.
- I'm constantly examining my health.
- My household budget is always tight.
- My household often has problems making ends meet.

We are almost at the end of the survey. All of your answers will remain anonymous and confidential. You can be confident that no one associated with this research project can personally identify you from your answers to the questions. The following questions are about yourself and are for classification purposes only.

Including yourself, how many people live in your household? Please type in the number: ____

Do children from any of the following age groups live in your household?

Please select all that apply to you.

- Yes – Aged 0 to 4 years
- Yes – Aged 5 to 8 years
- Yes – Aged 9 to 12 years
- Yes – Aged 13 to 17 years
- No children under 18 years living at home
- Do not wish to answer

Which of the following best describes your marital status?

Please select one.

- Never married
- Married
- Defacto
- Widowed
- Divorced
- Separated
- Do not wish to answer

Which of the following best describes your current employment status.

Please select one.

- Employed
- Self-employed
- Unemployed
- Retired
- Student
- Home duties
- Other
- Do not wish to answer

Please type the amount you spend per week on groceries: ____

Please enter closest full dollar amount.

Which of the following best describes your annual household income before tax?

Please select one.

- Less than \$30,000
- \$30,000 to \$59,999
- \$60,000 to \$89,999
- \$90,000 to \$119,999
- \$120,000 or above
- Do not wish to answer

Appendix B
Psychographic Scale

Price consciousness

- I compare prices of different stores to get the best price.
- I compare the prices of different brands to be sure I get the best value for my money.
- I always check prices at the grocery store to be sure I get the best value for the money I spend.

Variety seeking

- If I use the same brands over and over again, I get tired of them.
- I buy different brands to get some variety.

Financial constraints (i.e., cost of living)

- My household budget is always tight.
- My household often has problems making ends meet.

Deal proneness

- I always try to buy the brand that is on special.
- I am more likely to buy brands that are displayed at the end of the aisle.
- Catalogues influence me to buy the brands I would not normally buy.

Health consciousness

- I reflect about my health a lot.
- I'm very self-conscious about my health.
- I'm generally attentive to my inner feelings about my health.
- I'm constantly examining my health.

Appendix C
Inter-Item Correlation Matrix

| Price Consciousness Inter-Item Correlation Matrix | | | |
|--|--|---|--|
| | PC1 - I compare prices of different stores to get the best price | PC2 - I compare the prices of different brands to be sure I get the best value for my money | PC3 - I always check prices at the grocery store to be sure I get the best value for the money I spend |
| PC1 - I compare prices of different stores to get the best price | 1 | 0.649 | 0.58 |
| PC2 - I compare the prices of different brands to be sure I get the best value for my money | 0.649 | 1 | 0.727 |
| PC3 - I always check prices at the grocery store to be sure I get the best value for the money I spend | 0.58 | 0.727 | 1 |

| Variety Seeking Inter-Item Correlation Matrix | | |
|---|---|--|
| | VS1 - If I use the same brands over and over again, I get tired of them | VS2 - I buy different brands to get some variety |
| VS1 - If I use the same brands over and over again, I get tired of them | 1 | 0.41 |
| VS2 - I buy different brands to get some variety | 0.41 | 1 |

| Financial Constraints Inter-Item Correlation Matrix | | |
|--|---|--|
| | FC1 - My household budget is always tight | FC2 - My household often has problems making ends meet |
| FC1 - My household budget is always tight | 1 | 0.626 |
| FC2 - My household often has problems making ends meet | 0.626 | 1 |

| Deal Proneness Inter-Item Correlation Matrix | | | |
|--|--|---|--|
| | DP1 - I always try to buy the brand that is on special | DP2 - I am more likely to buy brands that are displayed at the end of the aisle | DP3 - Catalogues influence me to buy the brands I would not normally buy |

| | | | |
|---|------|------|------|
| DP1 - I always try to buy the brand that is on special | 1 | 0.30 | 0.35 |
| DP2 - I am more likely to buy brands that are displayed at the end of the aisle | 0.30 | 1 | 0.50 |
| DP3 - Catalogues influence me to buy the brands I would not normally buy | 0.35 | 0.50 | 1 |

| Health Consciousness Inter-Item Correlation Matrix | | | | |
|--|---------------------------------------|---|--|--|
| | HC1 - I reflect about my health a lot | HC2 - I'm very self-conscious about my health | HC3 - I'm generally attentive to my inner feelings about my health | HC4 - I'm constantly examining my health |
| HC1 - I reflect about my health a lot | 1 | 0.64 | 0.60 | 0.75 |
| HC2 - I'm very self-conscious about my health | 0.64 | 1 | 0.55 | 0.66 |
| HC3 - I'm generally attentive to my inner feelings about my health | 0.60 | 0.55 | 1 | 0.58 |
| HC4 - I'm constantly examining my health | 0.75 | 0.66 | 0.58 | 1 |

Appendix D

Crosstab of Scales and Demographics

Crosstab Deal Proneness and Age

| | | Age | | | Total |
|-------------------|------|-----|-------|-----|-------|
| | | <29 | 30-59 | 60+ | |
| Deal Proneness | 1 | 1 | 4 | 6 | 11 |
| | 1.33 | 0 | 2 | 2 | 4 |
| | 1.5 | 0 | 0 | 1 | 1 |
| | 1.67 | 0 | 4 | 9 | 13 |
| | 2 | 0 | 7 | 7 | 14 |
| | 2.33 | 4 | 8 | 9 | 21 |
| | 2.5 | 0 | 2 | 0 | 2 |
| | 2.67 | 1 | 9 | 9 | 19 |
| | 3 | 8 | 18 | 23 | 49 |
| | 3.33 | 7 | 16 | 9 | 32 |
| | 3.5 | 1 | 0 | 0 | 1 |
| | 3.67 | 6 | 15 | 22 | 43 |
| | 4 | 4 | 24 | 17 | 45 |
| | 4.33 | 7 | 16 | 13 | 36 |
| | 4.5 | 0 | 1 | 3 | 4 |
| | 4.67 | 3 | 24 | 13 | 40 |
| | 5 | 3 | 27 | 17 | 47 |
| | 5.33 | 5 | 23 | 10 | 38 |
| | 5.5 | 1 | 0 | 0 | 1 |
| | 5.67 | 1 | 13 | 11 | 25 |
| | 6 | 0 | 15 | 5 | 20 |
| 6.33 | 0 | 15 | 3 | 18 | |
| 6.5 | 0 | 6 | 0 | 6 | |
| 6.67 | 0 | 11 | 1 | 12 | |
| 7 | 52 | 260 | 190 | 502 | |
| Total | | 1 | 4 | 6 | 11 |

Chi-Square Tests

| Value | df | Asymptotic Significance (2-sided) |
|-------|----|-----------------------------------|
|-------|----|-----------------------------------|

| | | | |
|------------------------------|---------|----|-------|
| Pearson Chi-Square | 85.891a | 46 | 0 |
| Likelihood Ratio | 88.394 | 46 | 0 |
| Linear-by-Linear Association | 6.217 | 1 | 0.013 |
| N of Valid Cases | 502 | | |

a. 40 cells (55.6%) have expected count less than 5. The minimum expected count is .10.

Crosstab Deal Proneness and Income

| | | Income | | | Total |
|-------------------|------|--------------------|-----------------------|--------------------|-------|
| | | Less than \$60,000 | \$60,000 to \$119,999 | \$120,000 or above | |
| Deal Proneness | 1 | 5 | 4 | 0 | 9 |
| | 1.33 | 2 | 1 | 1 | 4 |
| | 1.67 | 7 | 3 | 2 | 12 |
| | 2 | 7 | 0 | 2 | 9 |
| | 2.33 | 11 | 6 | 1 | 18 |
| | 2.5 | 0 | 0 | 1 | 1 |
| | 2.67 | 9 | 6 | 4 | 19 |
| | 3 | 30 | 9 | 6 | 45 |
| | 3.33 | 15 | 9 | 3 | 27 |
| | 3.5 | 1 | 0 | 0 | 1 |
| | 3.67 | 30 | 4 | 5 | 39 |
| | 4 | 21 | 14 | 6 | 41 |
| | 4.33 | 18 | 11 | 4 | 33 |
| | 4.5 | 2 | 1 | 0 | 3 |
| | 4.67 | 18 | 15 | 5 | 38 |
| | 5 | 15 | 17 | 9 | 41 |
| | 5.33 | 19 | 11 | 4 | 34 |
| | 5.5 | 0 | 1 | 0 | 1 |
| | 5.67 | 10 | 11 | 1 | 22 |
| | 6 | 6 | 9 | 4 | 19 |
| 6.33 | 6 | 10 | 2 | 18 | |
| 6.67 | 1 | 5 | 0 | 6 | |
| 7 | 5 | 6 | 0 | 11 | |
| Total | 238 | 153 | 60 | 451 | |

Chi-Square Tests

| | Value | df | Asymptotic Significance (2-sided) |
|------------------------------|---------------------|----|-----------------------------------|
| Pearson Chi-Square | 60.061 ^a | 44 | 0.054 |
| Likelihood Ratio | 66.044 | 44 | 0.017 |
| Linear-by-Linear Association | 4.72 | 1 | 0.03 |
| N of Valid Cases | 451 | | |

a. 36 cells (52.2%) have expected count less than 5. The minimum expected count is .13.

Appendix E

Coding Scheme

Catalogue Details:

Country: 1= Australia; 2= New Zealand; 3= United States; 4=Malaysia; 5= South Africa

Supermarket chain: 1= Woolworths; 2= Coles; 3= Foodland; 4= Countdown; 5= Four Square; 6= New World; 7= Kroger; 8= Meijer; 9= Publix; 10= Giant; 11= Tesco; 12= Pick 'n' Pay; 13= Shoprite

Date: commencing date of the catalogue promotion given in dd/mm/yyyy format (e.g., 01/08/2018 = 1st of August 2018)

Duration of promotion: duration of the catalogue promotion given in number of days (e.g., 5= catalogue promotion ran for 5 days)

Number of pages: catalogue's total number of pages (e.g., 30= catalogue consists of 30 pages)

Number of items: total number of items promoted in catalogue (e.g., 100= catalogue contained 100 promoted items)

Number of items per page: number of items divided by number of pages

Promoted Item Details:

Product name: name of the promoted item (e.g., Chobani Oats Pouches 140g)

Category: 1= Fruit & Veg; 2= Meat, Seafood & Deli; 3= Bread & Bakery; 4= Dairy, Eggs & Fridge; 5= Pantry; 6= Frozen; 7= Drinks; 8= Liquor; 9= Pet care; 10= Baby care; 11= Health & Beauty; 12= Household

Position on page: left top; middle top; right top; left middle; middle; right middle; left bottom; middle bottom; right bottom; top row; middle row; bottom row; left column; middle column; right column

Size on page: divide the page into 3x3 grid, then count the number of columns and rows the item occupy: small (less than 1 of column and row grids); medium (1 to 2 of the column and row grids); large (2 or more of the column and row grids); half page; full page; column; row

Selling price: selling price of promoted item (e.g., 1.45= \$1.45)

Savings amount (if applicable*): amount of discount, in local currency (e.g., 3.99= Save \$3.99)

*only applicable if savings amount or before and after price are given

Discount depth (if applicable*): selling price divided by before discount price, in percentages

*only applicable if savings amount or before and after price are given

Promotion framing: 1= Percentage off discount; 2= Dollars off discount; 3= Bundling/Multiple unit promotion; 4= Everyday low-price promotion; 5= Newly launched product/variant; 6= Exclusivity; 7= Competitions/Prizes; 99= No price discounts

Promotion framing (detail): details of the price promotion framing (e.g., Low price always)

Attribute label: 1= Country of origin; 2= Region of origin; 3= Quality attributes; 4= Animal welfare; 5= Satisfaction rating/reviews; 6= Unit pricing/sizes; 7= Accompanying images; 99= Other

Attribute label (detailed): details of the label (e.g., Australian Grown)

Appendix F

Example of a Catalogue Page and the Coded Promoted Items

| Page | Ad position (column) | Ad position (row) | Ad size (cols) | Ad size (rows) | Ad size (detail) | Product name | National brand or Private label | Product Category | Selling price (\$) | Before price (\$) | Savings amount (\$) | Discount depth (%) | Promotion framing 1 (detail) | Promotion framing 2 (detail) | Promotion framing 3 (detail) | Claims 1 (detail) | Claims 2 (detail) | Claims 3 (detail) |
|------|----------------------|-------------------|----------------|----------------|------------------|--------------------------------------|---------------------------------|------------------|--------------------|-------------------|---------------------|--------------------|------------------------------|------------------------------|------------------------------|-------------------|-------------------|-------------------|
| | | | | | | | | | | | | | | | | | | |
| 8 | left | top | 2 | 1.5 | large | Nutella Hazelnut Spread 1kg | National | 5 Pantry | 10 | | 0.85 | 8 | 4 Was \$10.85 | May 2018 | | | | |
| 8 | right | top | 2 | 1 | medium | Sanitarium Up & Go Blends 3x250ml | National | 7 Drinks | 4.5 | 6 | 1.5 | 25 | 2 Save \$1.5 | | 5 New at Coles | | | |
| 8 | left | middle | 2 | 1 | small | Bonsoy Long Life Milk 1 Litre | National | 7 Drinks | 3.7 | 4.65 | 0.95 | 20 | 2 Save \$0.95 | | | | | |
| 8 | middle | middle | 2 | 1 | small | Annalisa Tomatoes 400g | National | 5 Pantry | 1 | 1.35 | 0.35 | 26 | 2 Save \$0.35 | | | | | |
| 8 | right | middle | 2 | 1 | small | Kantong Cooking Sauce 485g-520g | National | 5 Pantry | 2.5 | 3.3 | 0.8 | 24 | 2 Save \$0.8 | | | | | |
| 8 | left | bottom | 2 | 1 | small | San Remo Pasta 375g-500g | National | 5 Pantry | 1.8 | | | | 4 Was \$2.45 | May 2017 | | | | |
| 8 | middle | bottom | 2 | 1 | small | Uncle Ben's Microwave Rice 250g-300g | National | 5 Pantry | 5 | | 1.5 | 23 | 2 Save \$1.5 | | | | | |
| 8 | right | bottom | 2 | 1 | small | John West Salmon Tempters 95g | National | 5 Pantry | 1.5 | 2.3 | 0.8 | 35 | 2 Save \$0.8 | | | | | |

WIN A SHARE OF 5,000 RETURN FLIGHTS
in Australia

See page 11 for details.

Receive one entry for every \$50 you spend in store when you scan your Flybuys card.
Plus bonus entries when you purchase participating products.

DOWN DOWN

SAVE 85¢

\$10 ea
WAS \$10.85 MAY 2018

Nutella Hazelnut Spread 1kg
\$1.00 per 100g

NEW
coles

\$4.50 ea
SAVE \$1.50
WAS \$6

Sanitarium Up & Go Blends 3x250ml
\$6.00 per litre

\$3.70 ea
SAVE 95¢
WAS \$4.65

Bonsoy Long Life Milk 1 Litre
\$3.70 per litre

\$1 ea
SAVE 35¢
WAS \$1.35

Annalisa Tomatoes 400g
\$2.50 per kg

\$2.50 ea
SAVE 80¢
WAS \$3.30

Kantong Cooking Sauce 485g-520g

\$1.80 ea
WAS \$2.45 MAY 2017

San Remo Pasta 375g-500g

2 for \$5
SAVE \$1.50

Uncle Ben's Microwave Rice 250g-300g
BUY FOR A BONUS ENTRY

\$1.50 ea
SAVE 80¢
WAS \$2.30

John West Salmon Tempters 95g
\$15.79 per kg

Help feed people in need this Winter

100% donated to SecondBite

\$2 ea

Every \$2 donation card will help SecondBite deliver the equivalent of 10 meals to people in need.

coles
Partnering with **SecondBite**
Feed for people in need.