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OLEGÁRIO DA CRUZ DE ARAÚJO

IN-STORE ATTRACTIVENESS OF NATIONAL BRANDS AND PRIVATE LABELS IN AN EMERGING MARKET

SÃO PAULO
2018

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Dissertação apresentada à Escola de Administração de Empresas de São Paulo da Fundação Getúlio Vargas para obtenção do título de Mestre em Administração de Empresas.

Campo do conhecimento: Administração Mercadológica

Orientador: Prof. Dr. Felipe Zambaldi
Coorientador: Prof. Dr. Leandro Guissoni

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ABSTRACT

Emerging markets are considered relevant for international manufacturers and retailers to grow their turnovers. In order to achieve their goals, manufacturers and retailers are executing different initiatives to attract new customers such as in-store promotions. However, both in the US and here in Brazil, the results of these actions are questioned. Retailers are also investing in their Private Labels (PLs), which can alter the competitive dynamics within the categories. In the United States and Europe, studies were conducted to assess in-store promotions, impulses and responses in short-term and long-term sales for National Brands (NBs) and also Private Labels (PLs). The research question of this study was to evaluate if in Brazil, an emerging market, the attractiveness of Weighted Distribution, Price and Promotions of National Brands and Private Labels provide similar responses to the impulses. In order to evaluate if the impulses provide long-term residual effects for National Brands (NBs) and Private Labels (PLs), Vectors of Auto Regression (VAR) model was used in a continuous panel of self-service food stores in Greater São Paulo, which is the main metropolitan region of Brazil. The databases by categories (powdered coffee, biscuit, and ready-to-serve fruit juice) contained information of 25 months (November 2013 to November 2015) for each variable (Weighted Distribution, Price and Promotions), by NBs and PLs. The result of this study points out that there is a difference in responses to the impulses (distribution, price, and promotions) between NBs and PLs. National Brands (NBs) showed a greater number of situations with positive residual effects on long-term sales. However, the long-term response on sales occurred only for less than the half of the total potential situations. In other words, more than half of the total potential situations give an absence of statistical significance. The study indicates that there are retailers developing differentiated actions with Private Labels and obtaining, in their sales, positive long-term residual effects. Although modestly, this study contributes to the retail literature by using an econometric model (VAR) to analyze the impulse in some in-store attractiveness variables their long-term sales response to NBs and PLs in an emerging market. In short, the main contribution from the observations of the analyzed categories is that it is possible to Private Label compete without price sensibility and also positioning PL above the average price of the category/segment. The results also suggest that there is an opportunity to review the *modus operandi* of in-store promotion to get better results.

Key Words: National Brand; Private Label; Weighted Distribution; In-store Promotion; VAR.

RESUMO

Mercados emergentes são importantes para as receitas totais de fabricantes e varejistas internacionais. Estudos de companhias globais de pesquisa, que atuam no Brasil, apontam que os investimentos em ações promocionais no ponto-de-venda, pelas Marcas de Fabricantes, aumentaram, mas há questionamentos quanto ao retorno destas iniciativas. Os varejistas também têm investido em Marcas Próprias. Nos Estados Unidos e Europa há vários estudos sobre o estímulos dentro do ponto-de-venda para as Marcas dos Fabricantes e Marcas Próprias e o impacto nas vendas no curto e longo prazo. O objetivo central deste estudo é avaliar se, em um mercado emergente, o nivel de atratividade das ações realizadas pelas Marcas de Fabricantes e Marcas Próprias dentro das lojas proporcionam respostas similares de curto e longo prazo aos impulsos realizados. Para analisar os efeitos destes impulsos foi utilizado o modelo de Vetores de Auto Regressão (VAR) em um painel continuo de lojas de autosserviço alimentar, na principal região metropolitana do Brasil, a Grande São Paulo. As bases de dados por categoria (Café em Pó, Biscoito e Suco Pronto para Consumo), continham informações de 25 meses (novembro de 2013 à novembro de 2015), com dados de distribuição ponderada, preço e promoções, O resultado deste estudo aponta que há diferenças entre Marcas de Fabricantes e Marcas Próprias nas respostas de longo prazo aos estímulos promocionais. Embora as Marcas de Fabricantes tenham apresentado um maior número de situações com efeitos residuais positivos nas vendas de longo prazo do que as Marcas Próprias, apenas menos da metade das situações apresentaram resultados de longo prazo. O estudo também sinaliza que há varejistas desenvolvendo ações diferenciadas com Marcas Próprias e obtendo, em suas vendas, efeitos residuais positivos de longo prazo, na mesma intensidade das Marcas de Fabricantes. Embora de forma modesta, esta pesquisa contribui para a literatura ao utilizar um modelo econométrico (VAR) para analisar os impulsos aplicados em distribuição, preço e promoção das Marcas dos Fabricantes e das Marcas Próprias em um mercado emergente. A principal contribuição deste estudo, a partir das categorias analisadas, é que a Marca Própria, não necessariamente, precisa atuar apenas com um posicionamento de preço baixo e/ou reduzir preços para competir dentro da categoria ou segmento no qual está inserida. Além disto, o estudo também sugere que as há espaço para rever as práticas promocionais ou até operacionais, considerando o baixo retorno proporcionado para Marcas de Fabricantes e Marcas Próprias.

Palavras-chave: Marca de Fabricante; Marca Própria; Distribuição; Preço; Promoção; VAR

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SUMMARY

1. INTRODUCTION

Emerging markets are important destinations for companies (Venkatesan et al. 2015; Seth, 2011). The home-markets of international Retailers and manufacturers are mature and saturated. On the other hand, emerging markets represent an opportunity to the growth of global companies given they are under big pressure as result of changing in demographics, consumer consumption habits and fragmentation (Mergermarket 2017). In 2012, Euromonitor claimed "The global retailing industry was driven by Latin America, and the Middle East and Africa, both of which saw 4% sales growth in constant terms". The report provided by Deloitte (Global Powers of Retailing 2018, p. 27) compares the retail revenue growth and net profit margins among regions - The retail revenue growth in Latin America stood out, even in a recession period in Brazil (Europe: 4.0%; North America: 4.4%, and Latin America: 9.86%), and net profit margin also calls for attention (Europe: 3.4%; North America: 3.3% and Latin America: 5.0%). This information indicates that Latin America, including Brazil, will continue to be relevant for retailers and manufacturers. The Investors financial reports[1] of Carrefour, Casino and Dia%, point out that Brazil represents, respectively, 35%, 29.8% and 19% of their global turnover. Emergent markets are also important to Manufacturers. Latin American for instance, has its relevance in the global revenue of Nestle[2] (31.8%), Coca-Cola[3] (22.6%) and Mondelez[4] (13%) according to their 2016 annual reports.

Retailers invest in Private Label (PL) for several reasons. Hyman et al. (2010, p. 370, 376 and 377) in their literature review, summarized the advantages as following: "Increase Overall Profits in Product Category; Higher gross margin on Private Label (PL); Increase bargaining

[1] Carrefour (2018). Q4 2017 Sales. Available at: http://www.carrefour.com/sites/default/files/presentation_q4_2017_vdef_0.pdf. Accessed on February 21, 2018.
Casino (2017). 2016 Relatório anual de atividades e de sustentabilidade. Available at: https://www.groupe-casino.fr/fr/wp-content/uploads/sites/5/2009/02/RA-2016-PORTUGAIS.pdf. Accessed on February 21, 2018.
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[2] Nestle (2016). Annual Review 2016. Available at: https://www.nestle.com/asset-library/documents/library/documents/annual_reports/2016-annual-review-en.pdf. Accessed on March 7, 2018.
[3] The Coca-Cola Company (2016). FORM 10-K. Available at: http://www.coca-colacompany.com/content/dam/journey/us/en/private/fileassets/pdf/investors/2016-AR-10-K.pdf. Accessed on March 7, 2018.
[4] Mondelez (2017). Mondelēz International Reports 2016 Results. Available at: http://ir.mondelezinternational.com/releasedetail.cfm?releaseid=1010823. Accessed on March 7, 2018.

Power Relative to National Brands; Differentiate chain from competitors; Boost store loyalty; Attract Price-sensitive and Deal-prone Consumers who Value Lower-cost National Brand (NB) Substitute; Less Risky than Carrying Marginal National Brand (NB) on Deal". Burt (2000) raised some relevant points that contribute to the part of the channel power move from Manufacturers to Retailers in the UK, as centralization of operation. This provides access to information about consumers, more control over information in the supply chain and inside the stores. PL also gives access to the category performance and, with the previous conditions, enables retailers to gain scale and to increase their power in the relationship with industry, which can be done either in a collaborative way or not.

The PL share varies within categories, regions of a country and within countries. According to Nielsen (2016), the PL has a global average market share of 16.1% on the revenue of categories, notably 4% in South Korea and 45% in Switzerland. In the United Kingdom and Spain, the average share is 41%. In the United States, Canada, and South Africa this share is 18%. In Latin America, the average share is 7.9%. The highest share occurs in Colombia (15%) and the lowest average share occurs in Brazil (5.2%).

These general views seem to be confirmed in Brazil, where international retailer groups that run different store formats, such as Carrefour, Multivarejo (Casino), Walmart, Cencosud and Dia%, which have been operating and leading Private Label initiatives in the grocery industry and respond for 87% of PL total revenue (Nielsen, 2016). These global retailers are investing in PL quality, new lines, and revamping PL[5]. Brazil is a continental and fragmented country, where regional retailers are strong (Nielsen, 2014). Although local Brazilian retailers represent 13% of total PL revenue, they are investing in PL and responded for 33% of PL growth by the introduction of 51 out of 58 new PL in a one-year period (ending on August 14, 2016). The perception of quality is confirmed by a Nielsen study (2014) where seventy-five percent of Brazilian Internet Users state that PL is a good alternative to name brands and, for 78% of them, PL has usually extremely good value for money.

Abril and Martos-Partal (2013) concluded in their research that, thanks to retailer's investments, the consumer's perception of PL quality has improved through innovation and

[5] Estadão (2015). Dia% diversifica lojas e investe em marca própria. Available at http://economia.estadao.com.br/noticias/geral,dia-diversifica-lojas-e-investe-em-marca-propria-imp-,1744528. Accessed on July 22, 2017.

quality. However, it is necessary to consider retailer's strategy, PL positioning, consumer target and its perception, and the stage of PL in the country inside the retail and category. It is relevant because retailers are segmenting PL in the same category, even in the specific segment of product category.

In December 2016, Nielsen (2016) released its Private Label Annual study based on its Scantrack service, electronic data received from grocery chains that aggregate 148 categories in the Consumer-Packaged Goods (CPG) industry in Brazil. In a one-year period (until August 14, 2016), PL sales increased 13.3% and NB 9.6%. From another source of Nielsen (household panel), the study also revealed that PL has increased its penetration in 4 percentage points and reached 64.9% of total Brazilian households, families that bought a PL product at least once in a one-year period. Almost half of the PL sales growth was from new buyers. PL price is 13% lower than the average price of all categories audited by Nielsen (2016). The total revenue of PL in Brazil, considering the food self-service stores that provide electronic data to Nielsen from their POS, and which are made available by the Nielsen/Scantrack self-service food stores, based on 148 CPG categories surveyed within one-year period until August 14, 2016 was US$1.25 billion (US$ tourism exchange rate on 08/15/2016 at R$3.36). It is worth noting that in a ten-year-period PL growth increased 213%. Practically in the same period, the nominal growth of supermarket sales was 172.9%[6].

Since the 1980s, an increased competition imposed by Private Labels (PLs) in developed markets has caused a growing in-store competition with National Brands (Choi & Fred 2013; Fornari et al. 2016; Cotterill et al. 2000). During the 1980s, quality and price gap between PL and NB were reduced and sales of PL and generic products increased in this period as a demonstration of the acceptance by customers (McGoldrick, 1984; de Chernatony, 1988; Nandan & Dickinson, 1994; Hoch & Banerji, 1993). In this period, brand managers were under great pressure to generate short-term cash flow, developing and justifying long-term marketing strategies to add value to NB manufacturers in a context of changing the relationship between retailers and manufacturers (Shocker et al, 1994). In general, to deal with the PL and generic product competition, some NB manufacturers reduced their prices (Harris & Strang, 1985; Nandan & Dickinson 1994; Sethuraman & Cole, 1999), reduced or

[6] ABRAS. (2017). Brazilian Supermarket Association. Ranking ABRAS 2017. SuperHiper Magazine

eliminated advertising investments, or shifted them to trade promotion (Harris & Strang, 1985; Hoch et al., 2002).

In-store promotion and the nature of competition between NB and PL remain relevant. Ailawadi and Keller (2004) in the Journal of Retailing point the growth of promotions and Private Labels (PLs) as a crescent increase in the power of retailers. In 2005, trade Promotion represented around 60% of the total marketing budget (Ailawadi et al., 2009). Nowadays, the efficiency of promotions is being questioned. According to Nielsen (2015), the return on investment in promotions in the USA is getting smaller and 67% of promotional actions do not reach the break-even point, which means that only with 33% it is possible to make money and it is possible to reduce 22% of the promotions and increase sales. In Brazil, by conducting different studies in 2017, Nielsen and Kantar WorldPanel agree that the promotional activities should be reviewed. According to a study carried out by Nielsen (2017), 52% of the categories increased the promotional intensity in 2016 but only 27.4% of the sales promotions generated a volume increase. Kantar WorldPanel (2017) demonstrated that Brazil is among the countries with the highest promotional volume (Brazil 40.1%, Argentina 40%, and UK 38%) but the incremental volume generated in the categories is less than the global average.

The competition between NB and PL occurs around the world and promotion has an important role to attract shoppers. International retailers and manufacturers are challenged by pursuing integration among different countries but also by taking into consideration the need to local adaptation. From the promotional perspective, according to Steenkamp and Geyskens (2014), in-store promotion is among the greatest local of all instruments. This study focuses on understanding the sales performance of weighted distribution, price and in-store promotions by analyzing the impulse on these variables and the response on sales of NB and PL in an emerging market.

The literature review will provide a general view about NB, PL and Generic Product evolution, how marketing mix variables were influenced by the introduction of retailers' products, the circumstances that were favorable to this development, and the current stage of PL in the US, Europe, and Brazil. Then, based on the literature, weighted distribution, price and in-store promotions are analyzed at the price tier level within the category taking into consideration a cluster of NB and other of PL. This introduction is followed by the methodology, results, conclusions, and managerial implications for NB and PL, limitations of

the study, and some suggestions for further studies. To scrutinize and answer the proposed research question, three available categories were studied: 1) Powdered Coffee; 2) Biscuit/Cookie, and 3) Ready-to-serve Fruit Juice. Powdered Coffee is considered a commodity in terms of price and Biscuit/Cookies and Ready-to-serve Fruit Juice were chosen because they are among the top 5 categories in terms of household PL penetration to at least one among the top five Brazilian retailers[7]. For these three categories, the top 3 brands also have distinct characteristics such as their sizes and the concentration level of market share value. The research used Vectors of Auto Regression – VAR model to analyze the data to understand sales residual effects in the short-term and long-term of each variable for NB and PL.

2. LITERATURE REVIEW

Some researchers have defined NB as national brand manufacturer or manufacturers' brand. A National Brand (NB) is owned and sponsored by a manufacturer and it can be available with national or regional distribution, at the same time, through different channels and store formats (Abril & Sanchez, 2016; Rossi et al, 2015; Boyle & Lathrop, 2013; Dekimpe et al., 2011: McEnally & Hawes, 1984; Rao, 1969). In this research project, NB is considered a global, a regional or a local one. Morris (1979, p. 59) agreed with Economist Intelligence that defines PL as "Own label products are defined as consumer products produced by, or on behalf of distributors and sold under the distributor's own name or trademark through the distributor's own outlet". In this study, Nielsen's definition (2016a) will be adopted, in which the PL is characterized as a product sold exclusively by the retail organization that owns the property (registration) of the brand. It can carry the name of the retailer or use another brand not associated with the name of the organization.

In the literature, Private Label (PL) is named in different ways such as Own Brand, Store Brand Label, Private Label Brand, Private Brand, Wholesaler or Distributor Brand, Own Label, Retailer Own Label, House Brand, Retailer Brand, Supermarket Brand, and Retail Brand (Abril & Rodriguez-Cánovas; 2016; Calvo-Porral & Levy-Mangin, 2014; Burt & Davies, 2010; Mayer, 2009; Herstein & Gamliel, 2004; Collins-Dodd & Lindley, 2003). Although researchers have been using different names to talk about PL, there is a change

[7] Kantar WorldPanel 2017 – Marcas Próprias – Caminhos do Reaquecimento

going on that means thinking about retail and PL as a brand. Ailawadi and Keller (2004), in a special issue of the Journal of Retailing, suggested research priorities to develop and apply the traditional branding theory to retailer taking into consideration brand personality, experiential marketing, and brand architecture. Burt and Davies (2010, p. 872) reinforced the "focus on a holistic approach to retail branding because we feel it fits with the characteristics and competitive pressures facing the industry today".

Retailers invest on PL for several reasons. Hyman et al. (2010, p. 370, 376 and 377) in their literature review, summarized the advantages as following: "Increase Overall Profits in Product Category; Higher gross margin on PLB; Increase bargaining Power Relative to NB Manufacturers; Help to differentiate chain from competitors; Boost store loyalty; Attract Price-sensitive and Deal-prone Consumers who Value Lower-cost NB Substitute; Less Risky than Carrying Marginal NB on Deal". Burt (2000) raised some relevant points that contribute to the part of the channel power move from Manufacturers to Retailers in the UK such as centralization of operation. This provides access to information about consumers, more control over information in the supply chain and inside the stores. PL also gives access to the category performance and, with the previous conditions, enables retailers to gain scale and to increase their power in the relationship with industry, which can be done either in a collaborative way or not.

2.1. Private Label evolution

The PL was introduced in the US grocery store chains in the turn of the 19th to the 20th century (Hoch & Banerji, 1993). There are some evidences that the first PL was sold in 1840 by Jacob Bunn and the first chain was A&P in 1860 (Herstein & Gamliel, 2004). Marks & Spencer, an English retail company, had been working under their PL since 1884 in its Marks & Spencer Penny Bazaar, including food items such as spices and confectionery. St. Michael, a PL that belongs to Marks & Spencer, was introduced in the food segment in 1949[8]. In Brazil, the beginning of the PL occurred in 1960 with Grupo Sendas and, in 1971, Grupo Pão de Açúcar started selling its PL (Brito et al., 2004). Oliveira (2008) corroborates the fact that

[8] Marks & Spencer. (2017). From simple basics to making everyday delicious – how our food has developed since 1884. Available at https://marksintime.marksandspencer.com/download?id=2848. Accessed on June 10, 2017

the 1960s marked the beginning of the PL in Brazil, adding the Paes Mendonça in the 60s, and BomPreço, Carrefour and Makro in the 1970s.

Historically, there are three-time periods that contributed to the growth of PL. The first one is associated with post World War II and the expansion of the concept of self-service food stores in the 1950s. At that moment, the number of chains increased, and it created a better economic scenario to produce PL by gaining scale. The second period is related to the end of the Resale Price Maintenance in 1964 in European countries, which gave autonomy to retailers to fix consumer prices for NB and PL. The third and more intense period is related to the introduction of Generic Products and retailers improving PL quality in late 1970s and through the 1980s. It is not a coincidence that this happened after the petroleum crises in the 1970s (Olbrich et al., 2016; Heirstein & Gamliel, 2004; Hughes, 1996; De Chernatony & McWilliam, 1989).

PL is in different stages even in developed countries and retailers have different strategies. Fernie and Pierrel (1996) compared the United Kingdom with France and concluded that the evolution and development of the PL in the grocery store retail market in the United Kingdom is much more advanced than in France. Hoch and Banerji (1993) also recognize that the PL in Europe and Canada is qualitatively different from the United States, and they attribute these differences to factors such as smaller domestic markets, which tend to favor strong national competitors and retail concentration. Hughes (1996) also stated that there are differences between the US and the UK and, at that time, PL was more developed in the UK than in the US.

For Laaksonen and Reynolds (1994), PL could be understood in four generations. In each generation, the products require technology, consumer's motivation to buy, and different set of objectives for each retailer group. The sophistication level of the products varies from generation to generation. The evolution of the PL in the British grocery store started with the offer of a low quality/low price product to consumers, and it evolved to a retail label that offered an alternative of true value and reflected a clear marketing approach in the retail environment (Burt, 2000). Burt and Sparks (2002) add a fifth generation to the definition of Laaksonen and Reynolds (1994), which is the retailer's corporate brand that generates a strong, positive and practical identity, with tangible and intangible attributes related to both consumers' and stakeholders' satisfaction.

Table 1 – A typology of retail brands

	1st Generation	2st Generation	3st Generation	4st Generation	5st Generation
Branding form	Generic; No name; brand free; Unbranded	Own label; Unsupported own brand	Supported own brand	Extended retailer brand, i.e. segmented retail brands	Corporate brand
Strategy	Generic	Low price copy	Me-too copy of major brands	Value-added	Corporate positioning
Objective	Increase margins; Provide choice in pricing	Increase margins; Reduce manufacturers' power by setting the entry price; Provide better-value product (quality/price)	Enhance category margins; Expand product assortment, i.e. customer choice; Build retailer's image among consumers	Increase and retain the customer base; Enhance category margins; Improve image further; Differentiation	Produce strong positive identity and practice; First choice for consumers; Satisfy stakeholders
Product	Basic and functional products; Commodities	Staple or basic lines with a large volume	Big category products; Major sale items	Image-forming product groups; Large number of products with small volume (niche)	The corporation and its tangible and intangible attributes
Technology	Simple production process and basic technology	Technology lagging behind market leaders	Close to the brand leader	Innovative technology and processes	Stakeholder relationship management
Quality/Image	Lower quality and inferior image compared with the manufacturers' brands	Medium quality but still perceived as lower than leading manufacturers' brands; Secondary brand alongside the leading	Comparable with the brand leaders	Same or better than brand leader; Innovative and different products from brand leaders	Quality and consistency throughout the organization
Price position	20% or more below the brand leader	10-20% below	5-10% below	Equal or higher than known brand	Focus on delivering value
Consumers' motivation to buy	Price is the main criterion for buying	Price is still important	Both quality and price, i.e. value for money	Better and unique products	Trust
Supplier	National, not specialized	National, partly specializing to own label manufacturing	National, mostly specializing for own label manufacturing	International, manufacturing mostly own brands	Innovative partnerships

Source: Burt & Sparks (2002)

At a glance, a general vision of the PL throughout time may suggest that there is a pattern in its evolution, but the PL is in different stages within countries and within the same country at

the same period, depending on the retail company that is being analyzed and its strategy. Although the development of the PL presents different stages, PL evolution is not linear. It is more related to a retailer's strategy. The same retailer, in the same category, can introduce PL in different tiers. All generations of different types of PL can take place within the same category at the same time. Ailawadi and Keller (2004) comment that retailers are trying to create a line of PL that performs in different price levels within the same category.

Kumar and Steenkamp (2007) point out that the PL had begun to change 10 years earlier, notably in Europe, when retailers introduced the premium PL with the same quality (or even superior quality) than the ones offered by the NB. The retailers also started managing their PL more strategically through the introduction of price segmentation, offering consumers the possibility to choose among lower price of PLs, standard products and premium-priced products, and a careful management of their brand portfolio.

According to Kumar and Steenkamp (2007) there are four types of PL and named them as generics, copycats, premium store brands, and value innovators. Each one has different strategic and tactical aspects. A retailer can have brands in different positions inside the same category to reach different consumer needs and targets (Keller et al., 2016; González-Benito et al., 2015; Ter Braak, et al., 2013; Geyskens et al., 2010).

The distinction between PL and NB is getting less and less clear and retailers assume the responsibility for the marketing functions, which were traditionally handled by the manufacturers (Mayer, 2009). On the other hand, Herstein and Jaffe (2007) argue that developed markets offer high-quality PL with the purpose to supply consumers' demands. Nevertheless, in emerging economy the PL tends to have an average quality, which limits its attraction to clients not defined as price-sensitive.

Table 2 – Four types of Private Labels

Four types of Private Labels				
	Generic private labels	**Copycat brands**	**Premium store brands**	**Value innovators**
Examples	No-name black-and-white packages marked soap, shampoo, bread	• Walgreens shampoo • Osco vitamins • Quill office products	• President's Choice • Body Shop • Tesco Finest	• Aldi • H&M • IKEA
Strategy	Cheapest-undifferentiated	Me-too at a cheaper price	Value added	Best performance-price ratio
Objectives	• Provide customer with a low-price • Expand customer base	• Increase negotiating power against manufacturer • Increase retailer share of category profits	• Provide added-value products • Differentiate store • Increase category sales • Enhance margins	• Provide the best value • Build customer loyalty to store • Generate word of mouth
Branding	No brand name, or identified as first brand leader	Umbrella store brand or category-specific own labels	Store brand with subbrand or own label	Meaningless own labels to demonstrate variety
Pricing	Large discount, 20%-50% below brand leader	Moderate discount, 5%-25% below brand leader	Close to or higher than brand leader	Large discount, 20%-50% below brand leader
Category coverage	Basic functional product categories	Originates in large categories with strong brand leader	Image-forming categories, often fresh products	All categories
Quality to brand leader	Poor quality	Quality close to branded manufacturers	Quality on par or better, advertised as better	Functional quality on par with brand leader but with removal of "non-value-adding" product features and imagery
Product development	None; product put up for contracts to manufacturers with lagging technology	Reverse engineered using manufacturers with similar technology	Considerable effort to develop best products with similar or better technology	Considerable effort and innovation in terms of cost-benefit analysis
Packaging	Cheap and minimal	As close to brand leader as possible	Unique and source of differentiation	Unique but cost-efficient
Shelf placement	Poor; less visible shelves	Adjacent to brand leader	Prominent eye-catching positions	Normal as all over store
Advertising/ promotion	None	Frequent price promotions	Featured in advertisements but limited price promotions	Store not own-label advertising, normal promotion schedule
Customer proposition	Sold as cheapest-priced product	Sold as same quality but lower price	Sold as best products on market	Sold as best value-price of generics but objective quality on par with brand leaders

Source: Kumar and Steenkamp, 2007

2.2 The impact of generic product and PL on NB

Since the late 1970s, Generic Product and Private Label (PL) have been affecting intra-brand competition, specially the secondary and tertiary National Brand (NB) by reducing their market share (Moutinho, 1987; Hughes, 1996; Pauwels & Srinivasan, 2004; Hyman et al, 2010). “No-frill product” and “no-name product” are synonymous to Generic Product, which has austere packing. It is owned and controlled by a retailer or distributor. The pack does not show a name and contains only essential information about the product (Moutinho, 1987; McEnally & Hawes, 1984; McGoldrick & Sheath, 1981). It is important to note that Generic Product in this context is not related to generic drugs.

Retailers introduced generic products (no-frill products) in their assortment in the second half of the 1970s. It started in France at Carrefour in 1976 and U.S. retailers in 1977. The Generic Product proliferation reached many countries such as UK, Canada, Australia, Japan, Holland, Germany, Sweden, Ireland, and Belgium (Crittenden & Hawes, 1979; McGoldrick & Sheath, 1981; Moutinho, 1987; Goormans, 1981; Nandan & Dickinson, 1994). During the 1980s the quality and price gap between PL and NB were reduced and sales of PL and generic products increased in this period as a demonstration of the acceptance by customers (McGoldrick, 1984; De Chernatony, 1988; Nandan & Dickinson, 1994; Hoch & Banerji, 1993).

In this period, brand managers were under great pressure to generate short-term cash flow, developing and justifying long-term marketing strategies to add value to NB manufacturers in a context of changing the relationship between retailers and manufacturers (Shocker et al, 1994). Two relevant questions have arisen: is cutting price the best answer to compete with PL? How about implementing non-price strategies to increase the brand value? (Sethuraman & Cole, 1999). An example of this critical moment occurs in 1993 when the price of Marlboro was cut to compete with PL and “Wall Street analysts interpreted the price cut as the death knell of brands; Philip Morris’s stock lost $14 billion of its value; and the stocks of the top 25 consumer packaged-goods companies collectively lost $50 billion in value” (Quelch & Harding, 1996, p. 100). It is also known as “Marlboro Friday” (Shocker et al, 1994). In general, to deal with the PL and generic product competition, some NB manufacturers reduced their prices (Harris & Strang, 1985; Nandan & Dickinson 1994;

Sethuraman & Cole, 1999) and reduced or eliminated advertising investments or shifted them to trade promotion (Harris & Strang, 1985; Hoch et al., 2002). The nature of competition between NB and PL remains relevant. Ailawadi and Keller (2004) highlighted the expansion of promotions and PL as a sign of retailer strength.

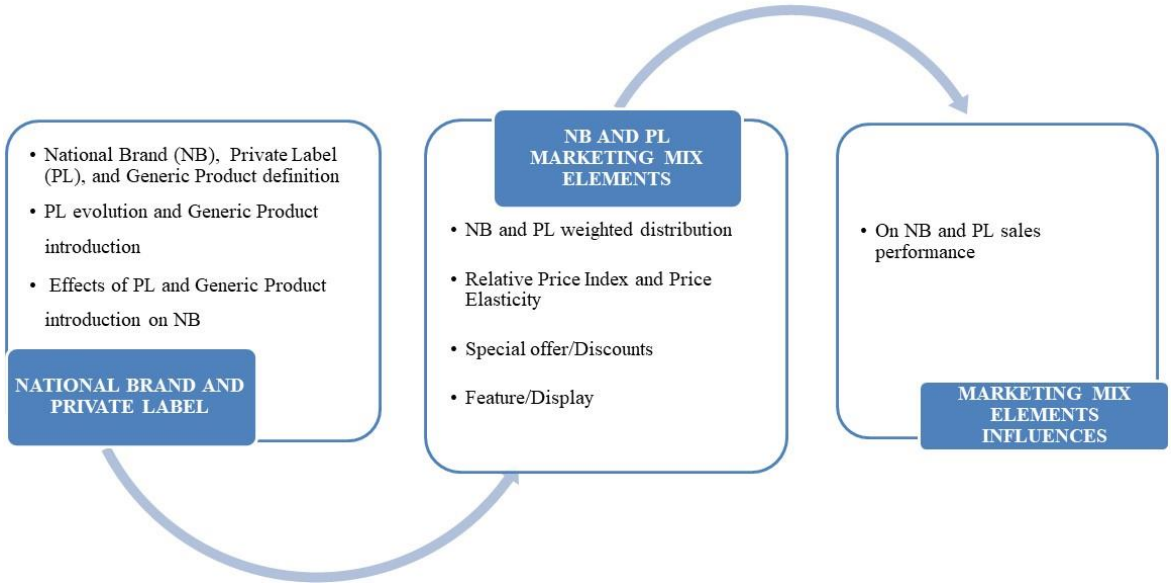
2.3. Marketing mix elements

The shift from a sales-oriented to a marketing-oriented approach led to the development of the marketing mix theory (Zineldin & Philipson, 2007). The marketing mix concept was elaborated in 1953 and it is attributed to Neil Borden (Van Waterschoot & Van den Bulte, 1992; Zineldin & Philipson, 2007). The Marketing Mix elements were: product scanning; price policy; branding; distribution channels; personal sales; promotions; advertising, packaging, display, services; physical handling; discovery of facts and analysis. Many approaches were proposed, but only McCarthy's prospered and became the dominant design, which identified four classes: Product, Price, Place (Distribution), and Promotion. Promotion was sub-divided in advertisement, personal sales, publicity, and sales promotion (Van Waterschoot & Van den Bulte, 1992).

Marketing Mix elements such as Weighted Distribution, Price, Special Offers/Discounts, and Feature/Display have become a regular instrument to NB, which have been measured in a regular basis, and are available as syndicated data throughout the world by research companies. It is the kind of information that marketing executives are familiarized with and they have been using it to monitor a brand's performance. Ataman et al. (2010) studied the integrated role of the marketing mix (advertisement, price promotion, product, and distribution) on the performance of consolidated brands in the short and long run. The main conclusions from the research are that all elements of the marketing mix have a positive impact in the short term but in the long term, sales are negatively affected by discounts. Product line length and distribution positively stand out in the long run. Venkatesan et al. (2015) analyzed the effects of marketing mix actions adopted by brands in Traditional Stores (mom and pop stores) and Chain Self-Service Stores (supermarkets and hypermarkets) in an emerging economy (Brazil). Some relevant conclusions must be mentioned: Product variety of sizes, price and the fact that merchandising impacts sales more intensively on Chain Self-Service Stores than in Traditional Stores; Promotion inside stores has relevant impact on sales

in Chain Self-Service Stores and CPG industries must to adapt their offers to each channel/store format.

Figure 1 - Summary of the literature review



Source: Author

3. THEORETICAL FRAMEWORK AND RESEARCH QUESTION

The interest of academics and practitioners in measuring the impact of marketing investments on NB's performance is growing. (Slotegraaf & Pauwels 2008). Vectors of Auto Regression (VAR) have been used in the marketing field to understand the residual effect on sales through the impulses/shocks in the elements of the marketing mix. In-store promotion is a relevant topic given the amount of investment made by manufacturers of NB. Ailawadi et al. (2009) pointed out the increase of in-store decisions by consumers, the strength of retailers in the negotiation and more media alternatives to communicate with consumers/shoppers.

Researches conducted in mature economies show positive residual effects in the short term, and negative or neutral in long term. The effects of promotional actions on revenue take place during the period of accommodation of the promotional actions but they are not permanent. After the promotional effect, the results, in general, go back to their previous trend because they are more tactical than strategic actions (Pauwels & Srinivasan 2004). Ataman et al. (2010), for instance, identified a positive effect of promotion in the short term but a negative

effect in the long term for part of the promotion under scrutiny. Dawes et al. (2013) argue that frequent promotions may not contribute for NB to recover market share. On the other hand, a studied conducted by Slotegraaf & Pauwels (2008) identified a positive effect of promotion in the long run. In Brazil, an emerging market, distribution is the variable that allows long-term results for more categories and price tiers segments, but price and promotion also deliver long-run responses in a very similar intensity. However, it can vary by category and price tier positioning

Table 3 – Studies that used time series and auto regressive models related to marketing mix

AUTHOR (S)	**TITLE OF THE ARTICLE**	**FINDINGS**
Bronnenberg et al. (2000)	The Emergence of Market Structure in New Repeat-Purchase Categories	Brands in young categories have a temporary positive relationship between market share and distribution. Over time, this benefit decreases, and the share growth effects are only temporary. In mature categories, distribution loses relevance and price increases its relevance.
Pauwels et al (2002)	The long-term effects of price promotions on category incidence, brand choice, and purchase quantity.	In mature markets, there is a balance between brand choices. The price reduction only provides temporary benefits for the established brands. Promotional effects last at most eight weeks. The promotion with price can induce purchases of non-buyers.
Srinivasan et al. (2004)	Do Promotions Benefit Manufacturers, Retailers, or Both?	The effects of promotional actions on revenue take place during the accommodation period of the promotional actions but they are not permanent. After the promotional effect, the results, in general, go back to their previous trend because they are more tactical than strategic actions.
Slotegraaf Pauwels (2008)	The impact of brand equity and innovation on the long-term effectiveness of promotions	Promotional marketing actions can generate permanent sales benefits for NB and brand equity plays an important role. The introduction of new items, which has something new to communicate to customers, can positively contribute to the effectiveness of promotional marketing.
Ataman et al. (2008)	Building Brands	All elements of the marketing mix have a positive effect on sales. Distribution is the main marketing mix element for success in the market and can explain sales differences between regions. Discount positively impacts sales in the short term but brings negative results in long-term.
Ataman et al. (2010)	The Long-Term Effect of Marketing Strategy on Brand Sales	The stimuli in the elements of marketing mix generate a positive return in the short term. Product and distribution have a greater effect in the long term. Sales boost sales in the short term, but negative in the long term.
Venkatesan et al. (2015)	Consumer Brand Marketing through Full- and Self-Service Channels in an Emerging Economy	There are differences in the effectiveness of marketing mix elements between channels. The effectiveness of Marketing mix actions differs between developed and emerging countries. Having product lines for each channel is an important aspect. Analyses point out that increasing the space in the gondola does not necessarily generate a positive result on sales.

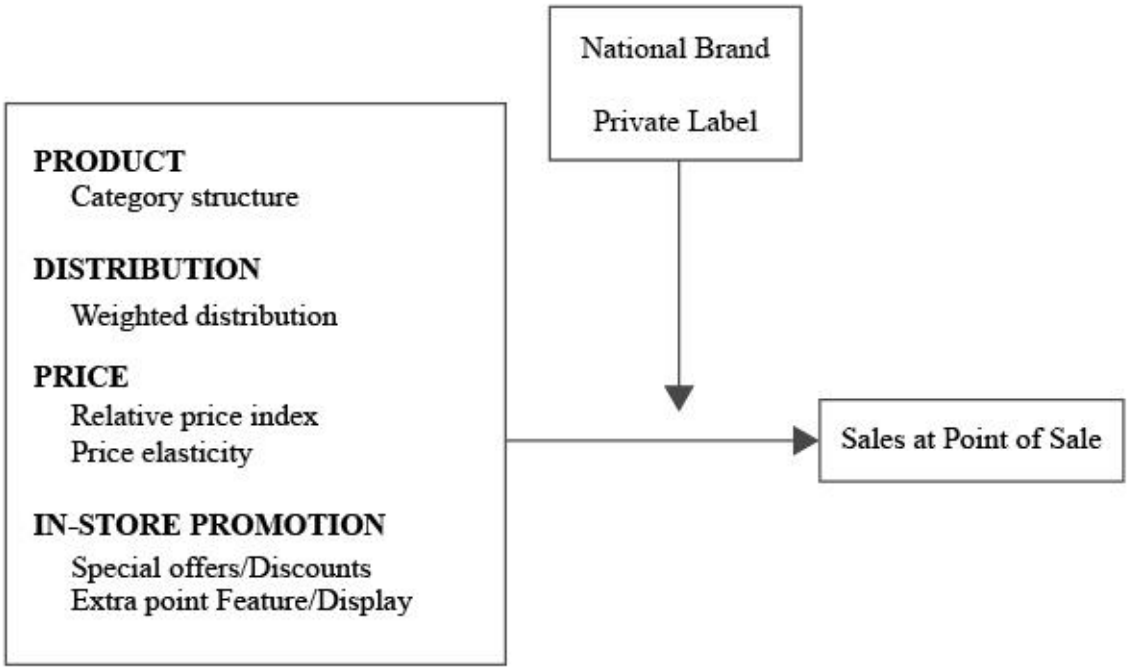
Source: Author

This study aims to understand by means of descriptive statistics the residual effects on NB and PL sales generated by the 1% impulses/shocks on independent variables as Weighted

Distribution, Price Index and in-store promotions. It is important to point out that, in this study, two types of promotions were analyzed: Special Offers/Discounts (gifts, temporary price reductions, coupons, extra-content, free sample), and Feature/Display (additional places as end-shelf, island and display beyond its natural place as shelf) and time series comprises an interval of 25 months (November 2013 to November 2015). This research analyzes and compares the sales performance of NB and PL as a response of impulses on Weighted Distribution, Price and In-store promotion. It is expected that the impulse-response is different to NB and PL. The VAR model was used to analyze these sales residual effects on short term (in this study, the following month) and long term (period of six months).

Based on the literature review, the following research question was elaborated: Do the impulses in Weighted Distribution, Price and in-store promotion generate different responses in sales for NB and PL in the long run?

Figure 2 – Weighted Distribution, Price, In-store promotions and their residual effects on sales



Source: Author

4. MARKET, CATEGORIES AND VARIABLES STUDIED

Greater São Paulo is globally ranked as the fifth in terms of urban population (United Nation, 2016) and consequentially the most relevant economic metropolitan area in Brazil. It counts with the presence of five of the six national retailers, accounting nationwide for 87% of PL's sales (Nielsen, 2016a). According to Senaure and Venturine (2005) the growth of PL in emerging markets is associated to presence of global retailers that brings their knowledge from their home markets. The greater São Paulo is also the headquarters of European retailers (Carrefour group, Casino group, Dia% group) and North American (Walmart group). These retailers also operate multiformat stores such as hypermarkets, supermarkets, and neighborhoods stores.

Table 4 – Brazil and Greater São Paulo - Facts

Variable	Brazil[7]	Greater São Paulo[8]	% of the total (Brazil)
Population (2016)	206,081,432	20,579,717	9.99%
GDP (2014)*[9]	US$ 2,2	US$ 385 million	17.7%
Number of self-service Stores[10]	83.573	5006	4.2%

*US$ exchange rate: R$ 2,6577 (December 21, 2014)

4.1. Powered Coffee category definition

Product obtained from the fruit of the coffee tree, which, after toasting and grinding, is used to prepare the beverage (coffee). It excludes instant coffee, ground or in-store packaged coffee, diet coffee, unbranded products, products of unknown manufacture, raw coffee beans, coffee and milk mixtures, and cappuccinos.

4.2. Ready-to-drink Juice category definition

Products made of fruit or artificial flavors, whether sugar-added or not, that do not require the addition of water or other liquids for consumption. Exclusions: coconut water, frozen fruit pulp, juice made with fermented milk, ready-to-drink fruit-flavored (such as Tonyu, Ades,

[9] BCB. (2017). Available at http://www.bcb.gov.br/pec/GCI/PORT/readout/R20170714.pdf. Accessed on July 22, 2017.
[10] Nielsen Brazilian food retail structure (2015)

fruit syrups, fruit and soy-based products), children's juice, carbonated juice, diet products and juice sold in plastic cups.

4.3. Biscuit/Cookie category definition

Products made of milk, eggs, butter, flour, water, sugar or salt, used as a meal, snack, appetizer and/or to be consumed with drinks, excluding biscuits made of rice, starch, corn meal, in-store manufactures, diet biscuits, snacks, sandwich cookies in packages containing up to 2 units, packages containing up to 9 units, ice cream cones, cream-filled wafer tubes, cereal-based foods, toaster biscuits and breadsticks.

Although these categories are allocated in the food basket, their market structures are different. Powdered Coffee is not present in all stores and stands out the fact that the top three brands have the same market share in revenue in Brazil and in Greater São Paulo (46%). Biscuit/Cookie is a very pulverized category with no relevant brand concentration, which means that the top 3 brands hold only 2% of revenue market share. On the other hand, Ready-to-Serve Fruit Juice has three brands that have expressive market share in Greater São Paulo (59%).

Table 5 – 2014 Categories Key Facts – Greater São Paulo (GSP)

Variables	**Powdered Coffee**		**Biscuit/Cookie**		**Ready-to- serve Fruit Juice**	
Region	Brazil	GSP	Brazil	GSP	Brazil	GSP
Total sales (US$ 1000)	2,156,614	211,348	4,156,462	378,238	2,015,368	298.274
Household penetration	95.0%	95.4%	99.9%	99.7%	81.4%	87.6%
Category Numeric Distribution Self-Service Food Stores	Above 95%	Above 95%	100%	100%	Above 95%	100%
Revenue Market Share of three main NBs	46%	46%	7%	2%	47%	59%

Source: Nielsen Tendências 2015

These three categories are offered to end-consumers through different formats and sizes of brick and mortar food stores between chain self-service and traditional full service. The data was analyzed in the consolidated way, which means brick and mortar food stores with data available by each National Brand. The data of PL is consolidated at level market (Greater São

Paulo). This database does not show information by individual retailer or PL, i.e., all the PL data of Carrefour group, Casino group (GPA), Dia% group and Walmart group, among others is analyzed together. In this study, the information on wholesale by self-service food stores that belongs to these groups, such as the Atacadão, Assaí and Maxxi, the Brazilian hard discount format will not be considered. Only the hypermarkets, supermarkets and neighborhood stores of these companies will be analyzed.

The analysis relies on a longitudinal and integrated database of Brazilian retail sales to consumers from November 2013 to November 2015 at market level product (i.e. all food self-service stores). This database is from Nielsen, a renowned global research company. Nielsen has released this data to protect recent marketing initiatives from Manufacturers and Retailers. The following variables were available for this study:

Table 6 – Variables

Variables	**National Brand – market level**	**Private Label – market level Aggregated data of all retailers that sell PL in the Greater São Paulo**
Unit sales	Kilos or Liters sold to consumers	Kilos or Liters sold to consumers
PRODUCT Category structure	National Brand	PL data from different retailers are consolidated in one total as one PL
DISTRIBUTION	NB weighted distribution (%)	PL (all retailers)–weighted distribution (%)
PRICE Relative price index Price elasticity	NB average weighted price divided by category average weighted price and multiplied by 100	PL average weighted price divided by category average weighted price and multiplied by 100
IN-STORE PROMOTIONS **Special Offers /Discounts** Gifts, price reductions, coupons, extra-content, free sample) **Feature/Display** Additional places as end-shelf, island and display beyond its natural place (shelf)	Weighted Distribution (%) indicates the importance of category revenue in stores that have this kind of promotion.	

Source: Author

5. METHODOLOGY

Seeking to address the research question and to contribute to the current literature on NB and PL in an emerging market, this study intends to apply the quantitative approach to verify how the variables obtained in retail can be integrated in an econometric model. This chapter presents the method that was used to approach the research question. According to Gil (1999) the method helps the researcher by providing guidance and techniques that allow the development of the research, and more specifically, the method helps the processing of the compiled data as well as the validation of the model and analyses. Thus, it is essential that the methodology can expound the knowledge clearly and offer adequate means to achieve the study results (Godoi & Balsini, 2006).

Table 7 – Research Project General Operationalization View

Step 1	**Step 2**	**Step 3**	**Step 4**
Creating Relative Price Index	Econometric tests (Unitary Root test; Discrepancy test; Co-integration test)	Applying VAR - vectors of auto regression to analyze the effects of marketing mix elements on sales	Applying impulse response to analyze the short and long effects of marketing mix elements on sales

Source: Author

Another aspect approached in this study is a descriptive research on the relation of the marketing variables. According to Fávero et al. (2009), a descriptive research allows for a better understanding of the data, identifying trends and atypical variations, through graphics and tables. The long-term variations of the marketing variables can also be identified by impulses in the variations of the other variables. Complementing the definition, Hair (2005) describes a descriptive research as an analysis of the events developed from statistical methods. Therefore, this dissertation can be defined as a quantitative descriptive study.

5.1. Relative Price Index

The compilation of the Price Index in this study had three stages. Firstly, by calculating the category and segment average weighted price by dividing sales revenue per volume (Kilos or Liters). Secondly, by dividing each NB weighted average price by category/segment weighted average price at market level of greater São Paulo. Thirdly, by multiplying the result by 100

to get the Relative Price Index. Due to the fact that the data of PL is an aggregate of all retailers at market level (Greater São Paulo), the Relative Price Index was calculated by dividing the total PL average weighted price by the category/segment average weighted price and finally multiplied by 100.

5.2. Econometric models – VAR – Vectors of Auto Regression

The econometric model chosen was used by Venkatesan et al. (2015) to estimate the effects of the marketing strategies for different regions and channels in Brazil. The Vectors of Auto Regression model (VAR) have become a dominant tool for studies of temporal series, especially due to its characteristics of interconnecting variables to create a model (Bruggermann, 2004; Vartanian, 2010). Other techniques can be used for multivariate analyses such as the vector autoregressive with errors correction model (VECM) and dynamic linear models**.**

$$\begin{bmatrix} Sales_{cijt} \\ Priceindex_{cit} \\ WeightedDist._{cit} \\ Special\ offers\ and\ discounts_{cit} \\ Feature/Display_{cit} \end{bmatrix} = \begin{bmatrix} \alpha_{1_i} \\ \alpha_{2_i} \\ \alpha_{3_i} \\ \alpha_{4_i} \\ \alpha_{5_i} \end{bmatrix} + \begin{bmatrix} \gamma_{1_t} \\ \gamma_{2_t} \\ \gamma_{3_t} \\ \gamma_{4_t} \\ \gamma_{5_t} \end{bmatrix} + \begin{bmatrix} \beta_{11_c} & \cdots & \beta_{15_c} \\ \vdots & \ddots & \vdots \\ \beta_{51_c} & \cdots & \beta_{55_c} \end{bmatrix} \begin{bmatrix} Sales_{cit-1} \\ Priceindex_{cit-1} \\ WeightedDist._{cit-1} \\ Special\ offers\ and\ discounts_{cit-1} \\ Feature/Display_{cit-1} \end{bmatrix} + \begin{bmatrix} \varepsilon_{1cit} \\ \varepsilon_{2cit} \\ \varepsilon_{3cit} \\ \varepsilon_{4cit} \\ \varepsilon_{5cit} \end{bmatrix} \quad (1)$$

Where:

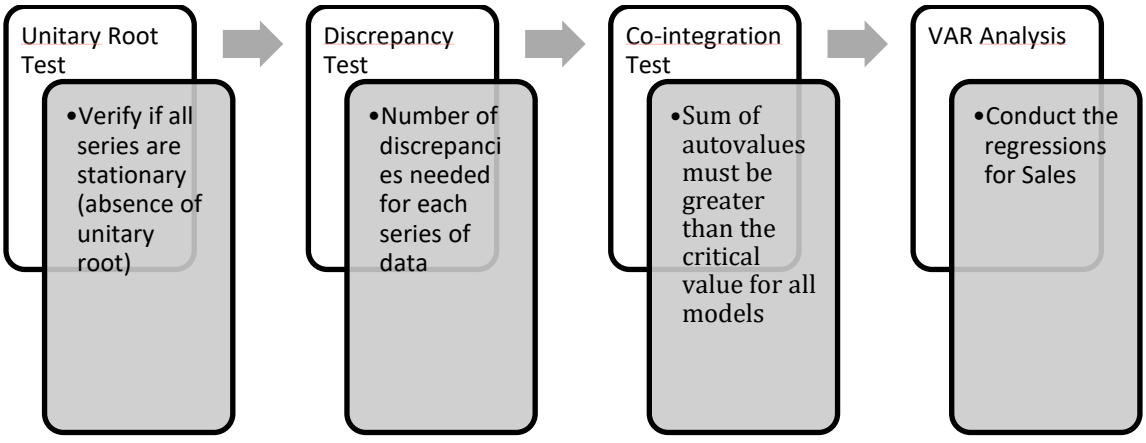
- $Sales_{cijt}$= sales in volume for SKUi, month t for category c;
- $Price_{cijt}$= price for SKUi, month t for category c;
- $WeightedDist._{cijt}$= weighted distribution for SKUi, month t for category c;
- $Special\ offers\ /Discounts_{cijt}$= exposition share for SKUi, month t for category c;

- $Feature/Display_{cijt}$= weighted distribution of promotions and displays for SKUi, month t for category c;
- $\{\alpha_{1_i}, \alpha_{2_i}, \dots, \alpha_{5_i}\}$= SKU fixed effects;
- $\{\gamma_{1_t}, \gamma_{2_t}, \dots, \gamma_{5_t}\}$= time fixed effects;
- $\{\varepsilon_{1_{cijt}}, \varepsilon_{2_{cijt}}, \dots, \varepsilon_{5_{cijt}}\}$ = random errors

5.2.1. Tests to assure the validity of the model

To achieve the objective of the analysis it is necessary to apply a few tests on the databank to assure the validity of the model. Figure 3 presents the steps that will be taken for this dissertation. Firstly, it will be required to assess if all series of data are stationary, i.e., it must be verified that unitary roots in the series of data are absent (Ataman et. al., 2010). The second step is to conduct the discrepancy test to verify which model best adapts vis-à-vis the number of discrepancy periods needed for an analysis of autoregressive vectors (Pauwels et al., 2004). The third step is to assess how the variables relate to themselves in the long run applying the co-integration test (Hanssens et al., 2003). The interdependence of the autoregressions may require the need to include additional equations to support the errors of the estimates (model known as Vector Errors Correction – VEC).

Figure 3 – Data Analysis Steps



Source: Adapted from Pauwels (2004)

5.2.2 Unit Root Test

According to Makridakis, Wheelwright and Hyndman (1998), the use of unitary root analysis allows to verify the stationary characteristics of the time series. For the regression analysis, one of the hypotheses of the model is that the series are stationary, that is, they always vary around the same mean.

In this way, shocks in marketing mix variables can suffer from unitary root effects when looking at the long-term effects on the dependent variables. Then, it is advised that they are initially identified and treated. (Hanssens, Parsons, & Schultz, 2003). The test used to verify the existence of the unitary roots was the Dickey-Fuller test (ADF Test). The results can be seen in Table 8 and Table 9 below:

Table 8 – Unit Root Test for National Brands

	Constant	Trend	Critical Dickey-Fuller		ADF		
			1%	5%	Coffee Powder	Biscuit/Cookie	Ready-to-serve Fruit Juice
Sales	No	No	-2.58	-1.95	-3.99	-5.44	-0.85
	Yes	No	-3.43	-2.86	-1.6	-3.35	-2.65
	Yes	Yes	-3.96	-3.41	-1.55	-3.32	-2.67
Weighted distribution	No	No	-2.58	-1.95	-4.26	-5.27	0
	Yes	No	-3.43	-2.86	0.38	-1.3	-0.77
	Yes	Yes	-3.96	-3.41	0.47	-1.36	-0.79
Special offers/ Discounts	No	No	-2.58	-1.95	-23.34	-43.36	-18.25
	Yes	No	-3.43	-2.86	-25.91	-47.56	-21.59
	Yes	Yes	-3.96	-3.41	-25.94	-47.58	-21.64
Feature /Display	No	No	-2.58	-1.95	-15.47	-30.54	-11.04
	Yes	No	-3.43	-2.86	-17.88	-34.03	-13.74
	Yes	Yes	-3.96	-3.41	-18.04	-34.03	-13.76
Price Index	No	No	-2.58	-1.95	-0.41	-3.45	-0.79
	Yes	No	-3.43	-2.86	-6.71	-12.74	-3.76
	Yes	Yes	-3.96	-3.41	-6.71	-12.73	-3.76

Source: The Author

Table 9 – Unit root test for Private Labels

	Constant	Trend	Critical Dickey-Fuller		ADF		
			1%	5%	Coffee Powder	Biscuit/Cookie	Ready-to-serve Fruit Juice
Sales	No	No	-2.58	-1.95	-0.1	-2.16	-0.6
	Yes	No	-3.43	-2.86	-1.76	-1.99	-0.48
	Yes	Yes	-3.96	-3.41	-1.75	-1.99	-0.5
Weighted distribution	No	No	-2.58	-1.95	-0.1	-2.2	-0.37
	Yes	No	-3.43	-2.86	-2.5	-0.72	-0.46
	Yes	Yes	-3.96	-3.41	-2.71	-0.84	-0.46
Special offers / Discounts	No	No	-2.58	-1.95	-7.06	-13.96	-2.55
	Yes	No	-3.43	-2.86	-8.13	-15.91	-2.72
	Yes	Yes	-3.96	-3.41	-8.13	-15.9	-2.79
Feature/Display	No	No	-2.58	-1.95	-6.38	-10.56	-1.41
	Yes	No	-3.43	-2.86	-7.3	-12.03	-2.56
	Yes	Yes	-3.96	-3.41	-7.33	-12.13	-2.55
Price Index	No	No	-2.58	-1.95	-0.39	-1.4	0
	Yes	No	-3.43	-2.86	-2.34	-3.61	-4.89
	Yes	Yes	-3.96	-3.41	-2.37	-3.59	-4.93

Source: Author

5.2.3. Lag Test

Another criterion required for VAR analysis is to consider the number of lags that the model will have, i.e. what is the number of previous periods that each endogenous variable must include in the model so that it can explain itself and the other variables.

The criteria used to verify the lags were two: AIC (Akaike's information criterion) and BIC (Bayesian information criterion), which are widely used in the literature that uses VAR modeling. As both criteria have distinct characteristics, it was found that applying these techniques together was an appropriate way of reaching the level of lag (Burnham & Anderson, 2004; Kuha, 2004).

Table 10 – AIC and BIC criteria for National Brands

	Coffee Powder		Biscuit/Cookie		Ready-to-serve Fruit Juice	
Lag	MBIC	MAIC	MBIC	MAIC	MBIC	MAIC
1	8.86E-31	8.86E-31	3.64E-30	3.64E-30	4.87E-29	4.87E-29
2	5.43E-29	5.43E-29	1.52E-29	1.52E-29	3.48E-28	3.48E-28
3	1.28E-28	1.28E-28	4.74E-29	4.74E-29	1.56E-28	1.56E-28

Source: Author

Table 11 – AIC and BIC criteria for Private Labels

	Coffee Powder		Biscuit/Cookie		Ready-to-serve Fruit Juice	
Lag	MBIC	MAIC	MBIC	MAIC	MBIC	MAIC
1	2.11E-30	2.11E-30	1.97E-30	1.97E-30	1.12E-30	1.12E-30
2	3.74E-28	3.74E-28	8.80E-30	8.80E-30	5.50E-30	5.50E-30
3	9.24E-27	9.24E-27	1.91E-29	1.91E-29	9.19E-30	9.19E-30

Source: Author

5.2.4 Cointegration Test

The cointegration test is used to verify the long-term equilibrium between the endogenous variables (Pauwels, Hanssens, & Suddarth, 2002). Johansen (1991) presents a way to verify the existence of cointegration by observing the eigenvalues of the coefficient matrix. The test basically seeks a greater number of eigenvalues than the number of linear regressions.

If there is cointegration between the variables it is necessary to add vectors for the correction of the error of the model, which is known as VECM (Srinivasan, Leszczyc, & Bass, 2000).

Table 12 – Cointegration test for coffee National Brands

		Coffee Powder			
		Eigenvalue	Trace	Critical Value	P-Value
Test of rank =	0	0.730	11657.46	6947.44	0.000
Test of rank =	1	0.725	8850.67	5382.06	0.000
Test of rank =	2	0.713	6079.30	3826.33	0.000
Test of rank =	3	0.641	3402.47	2297.15	0.000
Test of rank =	4	0.430	1206.21	922.61	0.000

Source: Author

Table 13 – Cointegration test for biscuit/cookie National Brands

		Biscuit/Cookie			
		Eigenvalue	Trace	Critical Value	P-Value
Test of rank =	0	0.704	36970.30	23053.37	0.000
Test of rank =	1	0.673	28017.06	17874.97	0.000
Test of rank =	2	0.647	19794.39	12924.02	0.000
Test of rank =	3	0.632	12126.37	8161.48	0.000
Test of rank =	4	0.478	4777.66	3514.02	0.000

Source: Author

Table 14 – Cointegration test for ready-to-serve fruit juice National Brands

		Ready-to-serve Fruit Juice			
		Eigenvalue	Trace	Critical Value	P-Value
Test of rank =	0	0.73237149	8005.985	4966.70	0.000
Test of rank =	1	0.72996286	5874.5277	3782.45	0.000
Test of rank =	2	0.59778859	3757.5582	2602.10	0.000
Test of rank =	3	0.5358543	2284.8311	1635.48	0.000
Test of rank =	4	0.47557322	1043.6918	769.00	0.000

Source: Author

Table 15 – Cointegration test for coffee powder Private Labels

		Coffee Powder			
		Eigenvalue	Trace	Critical Value	P-Value
Test of rank =	0	0.791	823.42	478.88	0.000
Test of rank =	1	0.738	601.24	366.58	0.000
Test of rank =	2	0.693	411.30	261.85	0.000
Test of rank =	3	0.596	243.84	163.52	0.000
Test of rank =	4	0.556	115.18	78.9	0.000

Source: Author

Table 16 – Cointegration test for biscuit/cookie Private Labels

		Biscuit/Cookie			
		Eigenvalue	Trace	Critical Value	P-Value
Test of rank =	0	0.75458816	3035.52307	1838.02	0.000
Test of rank =	1	0.71648504	2233.37228	1407.15	0.000
Test of rank =	2	0.65422651	1513.63227	998.04	0.000

Test of rank =	3	0.58160493	907.24662	624.48	0.000
Test of rank =	4	0.51205086	409.71768	292.38	0.000

Source: Author

Table 17 – Cointegration test for ready-to-serve fruit juice Private Labels

		Ready-to-serve Fruit Juice			
		Eigenvalue	Trace	Critical Value	P-Value
Test of rank =	0	0.85866325	444.483119	241.78	0.000
Test of rank =	1	0.77108705	309.477039	182.54	0.000
Test of rank =	2	0.71032776	207.742509	129.33	0.000
Test of rank =	3	0.65035112	122.251151	80.32	0.000
Test of rank =	4	0.51370021	49.744169	35.45	0.000

Source: Author

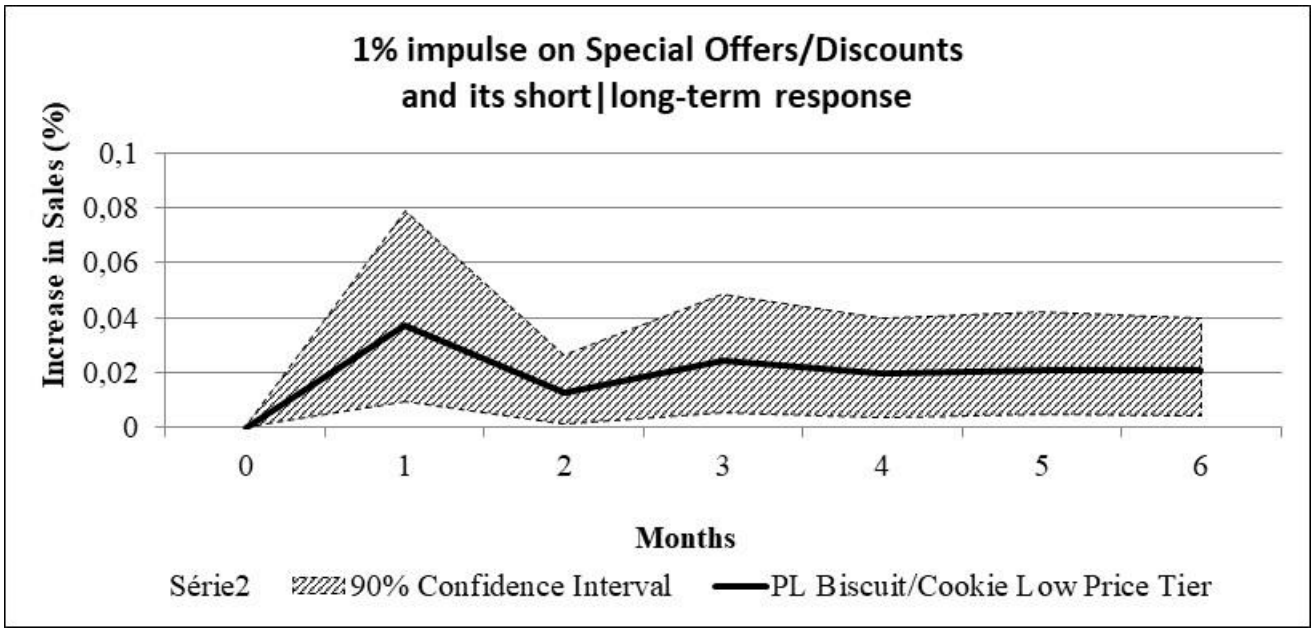
All the trace values are greater than the critical value in all the models. Due to this factor, it was decided not to use any cointegration vector in the analysis.

6. RESULTS

A research conducted by Putsis (1997) concluded that understanding the competition between NB and PL implies analyzing market share, local retail concentration, and trade promotion aspects. The rival competition is not symmetric, not all the Marketing Mix actions require a similar response and there is not a pattern of competition between the PL and the NB within categories.

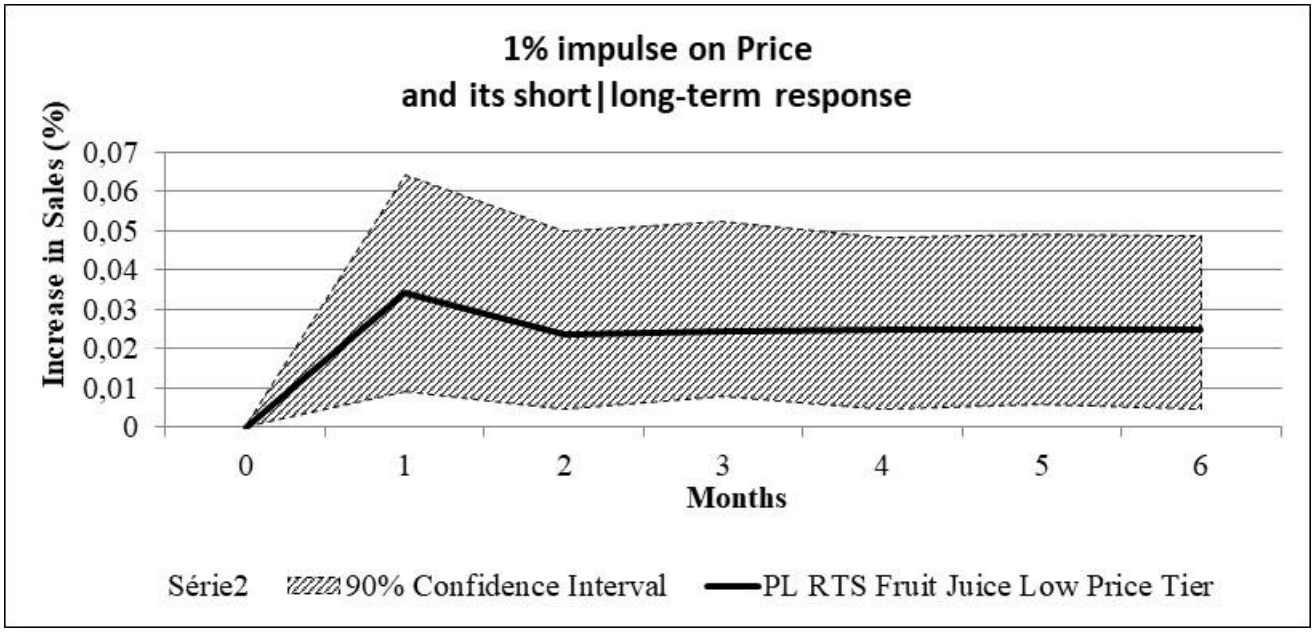
This study found long-term response of impulses on Weighted Distribution, Price and Promotions. What stands out is the long-term results for both NB and PL, which means, for instance, that an impulse of 1% on PL price or PL Special Offers/Discount increased sales in the long term. Figures 4 to 6 provide a perspective of the residual effects on short term (an immediate or contemporaneous response on the first month) and a long-term persistence response (a response that is persistent for six-month). Although it is not possible to generalize, these results give some "food for thought" about PL price sensibility which means there is room to rethink PL positioning and price promotions because probably there are situations that allow the improvement of gross margins.

Figure 4 – Persistent long-term residual effect of Special Offer/Discounts on PL sales



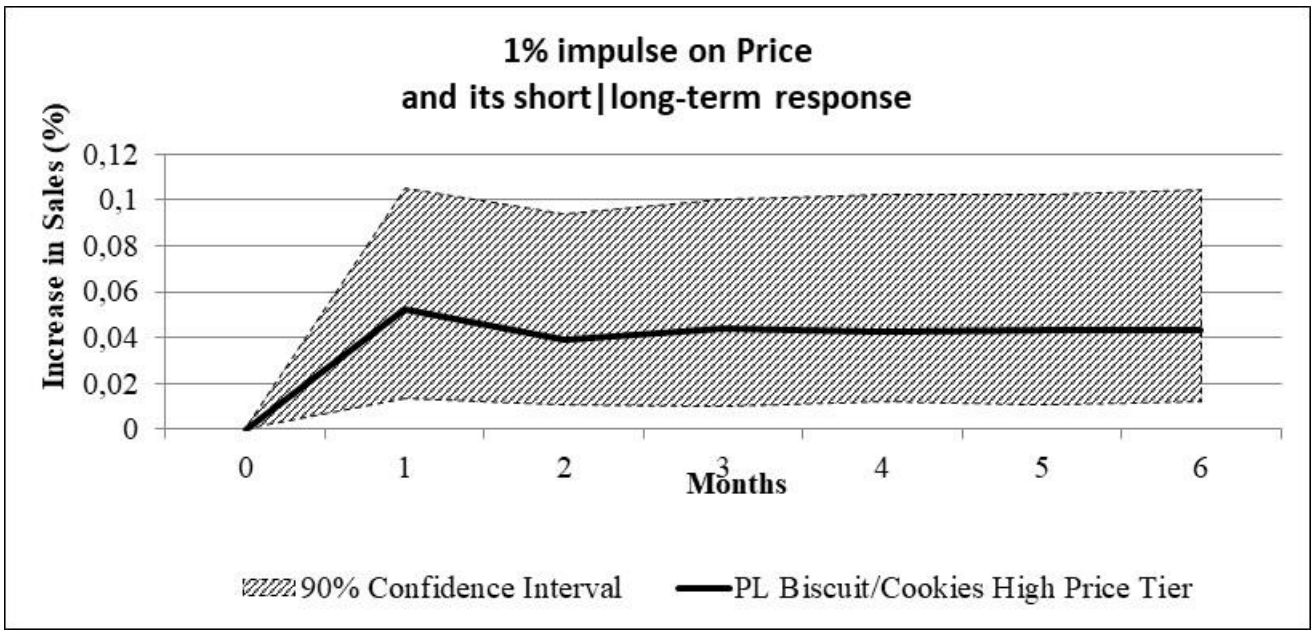
Source: Author

Figure 5 – Persistent long-term residual effect of Price on PL sales



Source: Author

Figure 6 – Persistent long-term residual effect of Price on PL sales



Source: Author

The results of the research demonstrate that the impulses in Weighted Distribution, Price and in-store promotions provide more consistent results for NB than for PL regardless of the category or price positioning. Potentially, there are 24 situations (3 categories × 2 tiers × 4 variables) that NBs can obtain residual effects on sales but in most of the situations (15 of 24), there are no statistical significance. Powdered Coffee category stands out because only

Weighted Distribution variable generates short and long-term responses For PLs, the residual effect of short and long term occurs for a much smaller number of situations (only 3 out of 24 possibilities).

Weighted Distribution is the variable that generates more long-term residual effects. Impulses of 1% in Weighted Distribution contribute to the NB in the long term in the two price tiers analyzed, which is observed for NB positioned in the High Price Tier (Powdered Coffee 0.196% and Biscuit/Cookie 0.283%) and Low-Price Tier (Powdered Coffee 0.178%, Biscuit/Coffee 0.159%).

The analysis by tier brought different results for each promotional activity. For NB positioned in the Low-Price Tier, the variable that generated long-turn residual effect was Feature/Display (Ready-to-serve Fruit Juice 0.290% and Biscuit/Cookie 0.064%). For NB in High Price Tier, the one that provided residual effect was Special Offers/Discounts (Ready-to-serve Fruit Juice 0.114% and Biscuit/Cookie 0.038%). However, PL in Biscuit/Cookie positioned in the Low-Price tier segment also presented a positive result on this variable, showing that retailers also have an opportunity to increase sales with PL in the long run.

It is possible to observe that PL positioned in High Price Tier in Biscuit/Cookie category gets positive long-term residual effects with the variable price (0.264%). In Ready-to-serve Fruit Juice, the PL also stood out in Low Price tier also generating long-term residual effects on Price (0.157%) and in Special Offers/discounts (0.135%). It confirms the consideration in the begging of this study that retailers are investing and revamping PL in Brazil. The results also confirm that it is possible for Retailers to get positive long-term responses on sales by investing in PL. These examples corroborate the claim of Dhar and Hoch (1997) whose analyses suggest that promotional support from the retailer can increase the performance of PL.

Table 18 – Impulse response to NB and PL

	Short-Term (ST) and Long-Term (LT) ELASTICITY of residual effects on sales			
	Weighted Distribution	***Feature/Display***	**Special Offers/Discounts**	**Price Index**
	NATIONAL BRAND			
NB-Powdered Coffee | High Price Tier	ST(0.042) LT(0.196)	n.s.	n.s.	n.s.
NB-Powdered Coffee | Low Price Tier	ST(0.038) LT(0.178)	n.s.	n.s.	n.s.
NB-Ready-to-serve Fruit Juice | High Price Tier	n.s.	n.s.	ST(0.027) LT(0.114)	n.s.
NB-Ready-to-serve Fruit Juice | Low Price Tier	n.s.	ST(0.051) LT (0.290)	n.s.	n.s.
NB-Biscuit/Cookie | High Price Tier	ST(0.049) LT(0.283)	n.s.	ST(0.010) LT(0.038)	ST(0.025) LT(0.125)
NB-Biscuit/Cookie | Low Price Tier	ST(0.033) LT(0.159)	ST(0.015) LT (0.064)	n.s.	n.s.
	PRIVATE LABEL			
PL-Powdered Coffee | High Price Tier	n.s.	n.s.	n.s.	n.s.
PL-Powdered Coffee | Low Price Tier	n.s.	n.s.	n.s.	n.s.
PL-Ready-to-serve Fruit Juice | High Price Tier	n.s.	n.s.	n.s.	n.s.
PL-Ready-to-serve Fruit Juice | Low Price Tier	n.s.	n.s.	n.s.	ST(0.034) LT(0.157)
PL-Biscuit/Cookie | High Price Tier	n.s.	n.s.	n.s.	ST(0.053) LT(0.264)
PL-Biscuit/Cookie | Low Price Tier	n.s.	n.s.	ST(0.037) LT (0.135)	n.s.

n.s. = not significant/90% of confidence interval

Source: Author

7. CONCLUSIONS AND MANAGERIAL IMPLICATIONS

This study confirms that there are differences in the impulse-response between NBs and PLs in an emerging market and among categories/price tiers. The result is also in line with Putsis and Dhar (1998) and Dhar and Hoch (1997) that there are many factors that can influence NB and PL sales performance at Point of Sale and they can vary by category and market conditions. The categories analyzed in this study have different characteristics. In the Powdered Coffee category, the first three brands hold 46% of market share revenue while in Ready-to-serve Fruit Juice they hold 56%. Although the concentration in the top 3 brands is high in both categories, the impulse response on the in-store promotion variables was not the same. The long-term response to Powdered Coffee occurred only in Weighted Distribution for NBs. There is no impulse response to PL. The impulse response to Ready-to-serve Fruit Juice was also unique given the fact that an impulse in Weighted Distribution did not generate a long-term response on sales but promotion did, including to PL Biscuit/Cookie category presents the highest level of market share spreading. The top 3 brands hold only 2% of revenue in the category and NB and PL sales respond positively to the impulses in all marketing mix elements to NB. PL also showed long-term impulse response in Biscuit Category in Special Offers/Discounts and Price.

This study confirms the positive impulse response of the elements of Weighted Distribution Price and In-store promotions by the residual effects on sales in the long term and it is

partially aligned with Ataman et al. (2010) findings which means that Weighted Distribution is the most relevant and consistent element of marketing mix for NB (sales impulse response). The study took into consideration all NBs within each category in desegregated way. Although there are differences with the study conducted by Slotegraaf and Pauwels (2008), both presented a positive impulse response for promotion in the long term.

Although it is a weak signal, considering that in only three situations it was possible to see PL benefiting from long-term impulse responses (Biscuit/Cookie in Price Index and Special Offers/Discounts, Ready-to-serve Fruit Juice in Price Index), such result indicates that there are retailers investing in a differentiated positioning for PL, including in a segment of higher value added. The result suggests that, from the shopper's perspective, PLs in Ready-to-serve Fruit Juice and Biscuit/Cookie are perceived in a differentiated way and it is possible to obtain long-term responses to the impulses made, which means a positive price elasticity during the period analyzed.

This study did not analyze results from financial perspective but differently from mature economies, it was possible to realize that, in terms of sales, the in-store promotions can generate long-term results at least to the three categories that were analyzed in this study.
Srinivasan et al. (2001) concluded in their studies that promotion only allows tactical results for Manufacturers and negative effects in retailer's margins.

The analyses carried out in this study are in line with the general conclusions of international studies. The study reinforces the findings of previous researches that the results of one or a few categories cannot be generalized because there are differences between countries, regions within the country, retailers and even within the same category. Social, economic, and cultural aspects of society; demographic profile, structural characteristics of the category, consumer habits, previous experiences of consumers with PL make each category unique.

Seth (2011) invited researchers of the marketing field to take a new look at emerging markets. The expectation is that this research can make its modest contribution from an emerging market perspective.

7.1. Managerial implications

From a practical point of view, there are six central messages in this study: 1) Impulses applied to the variables analyzed and the responses obtained in a category/segment cannot be generalized. What is true for a given category/segment in a given context will be no more than an assumption for another category. Thus, it can not be accepted as a truth without due proof; 2) Weighed Distribution is the element that provided a more generalized, consistent result, considering the categories studied; 3) Understanding the positioning of NB within the category is a critical factor in making decisions about which stimuli to invest. This study has provided suggestions that the impulses in Feature/Display and Special Offers/Discounts generate different responses not only by category but also within the category itself, depending on the positioning of the brand; 4) This study demonstrated that there are retailers placing PL differently within the categories/segments and obtaining, in the long term, positive responses to these impulses; 5) The study also creates the conditions to discuss paradigms about the binomial quality/price, since there are retailers positioning PL above the average price of the category and obtaining results in sales in the long term; 6) The price is the most challenging variable and segmentation analysis has shown that there are initiatives from both NB and PL so that this element of the marketing mix also provides long-term results. There is not only one way to run NB or PL. It is necessary to learn from the global perspective and take into consideration local market characteristics, especially in-store promotion (Steenkamp & Geyskens 2014)

7.1.1. Implications to National Brand

Presence of NB in Point-of-Sale. Weighted Distribution showed up as the variable that provides long-term residual effects for more segments. One of the challenges is to ensure this presence in the Point-of-Sale and avoid Out-of-Stock (OOS), which may compromise the potential residual effect on sales. According to a study conducted by Accera (2015), a technological supply chain company, the out-of-stock is around 11% for big and medium retailers are considered. It is a critical aspect that can impact negatively the potential results of Weighted Distribution.

Promotion. There is a global issue associated with the effectiveness of in-store promotion, which was confirmed in this study given fact that the significance of residual effects was reached in less than half of the potential situations. According to a Nielsen Study (2017), 52% of the categories increased the promotional intensity in 2016 but only 27.4% of the promotional sales increased volume. Kantar WorldPanel (2017) demonstrated that Brazil is among the countries with the highest promotional volume (Brazil 40.1%, Argentina 40%, and UK 38%), but the incremental volume generated in the categories is less than the global average. In sum, there is room to review the way that manufacturers and retailers are running their promotions.

Based on the analysis performed, NB, which had a price position above the average of its segment (High Price Tier), had significant residual effects with Special Offers and Discounts, which may contribute to short and long-term results in an effective way. The challenge, once again, is to monitor such initiatives in order not to gradually diminish the value of the brand and to maintain the contribution of promotions to results without, in the long term, compromising brand value. The result of this research, in Ready-to-serve Fruit Juice, seems to confirm that consumers are more price-conscious (Steenkamp et al., 2010).

7.1.2. Implications to Private Label

Retail executives are, in essence, generalists because they manage a large number of categories. Given the everyday challenges and the amount of short-term decisions, maybe executives have to apply general assumptions and make quick decisions to run the business. The analysis of the three categories suggests that general rules can lead to results below expectations. Although changes are already observed, the mindset of retailers is the distributor, i.e., to buy for the lowest price, to pay in the long term and to offer their target customers the best price. However, to manage PL successfully, retailers will need to have a team closer to the industry mindset and maximize the partnership with their PL suppliers. Although this is the overall picture, the long-term impulse response on sales of PLs Biscuit/Cookie and Ready-to-serve Fruit Juice suggests there is room for reaching better results with PLs by positioning them differently inside the category and by using the correct promotions tools.

Structure. The development and sustainability of PL depends on how retail acts. It is necessary to have an alignment between strategy and structure. Paula et al. (2013) and Oliveira (2016) point out the importance of having a dedicated structure/team for the PL, responsible for its creation, development, and management. Paiva et al. (2006) suggest the importance of having the different links in the chain aligned with quality and constancy by their central role in the purchase propensity of consumers.

Product. Reducing the quality gap and investing in packing are vital to PL (Steenkamp & Geyskens (2014). These initiatives will support retailers to stimulate shoppers to trial and repeat the purchase by using comparison and experimentation, which can be done with consumers at the point-of-sale but also with opinion formers on social networks.

8. LIMITATIONS OF THE STUDY AND SOME SUGGESTIONS FOR FUTURE STUDIES

This study is characterized by bringing the dynamics of NB and PL from the perspective of in-store promotions. However, it has two important limitations:

1) The information on PL is grouped at the market level, i.e., it is not open by a retailer, which limits more assertive analysis within a specific retailer that has a differentiated strategy;
2) The NB was analyzed by Price Tier, but there are categories and NBs in different life cycles, with low and high market share, which means that the study has showed the average pattern, meaning an advance for Brazil and a good contribution but a room to enhance and implementing new possibilities;
3) The data is about food self-service stores like supermarkets and the global retailers are also investing in a Brazilian hard discount format;
4) Lack of financial information for cost evaluation.

These limitations actually create opportunities to broaden the understanding of the relationships and effects of in store promotions:

1) To develop this study with information from a retailer that works with PL in different categories, which would lead to more assertive analyses and a better understanding of the interactions of the elements of the marketing mix with the market share and the residual effects on the sales of both NB and PL;

2) Develop a study from the industry perspective to consider the investment in advertising and the reflections in the POS, considering that there are industries that regularly get information from stores;
3) The third opportunity would be to study how short-term actions of the elements of marketing mix influence the value of the brand in the long term.

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Appendices

Table A1.

	Powder Coffee				Cookies				Ready-to-serve Fruit Juice			
Δ*lshare*	Coef.	s.d.	t	p>|t|	Coef.	s.d.	t	p>|t|	Coef.	s.d.	t	p>|t|
Interaction with…												
Nacional Brands												
Lagged Δlshare	-0.212	0.031	-6.92	0.000	-0.142	0.018	-7.86	0.000	-0.022	0.036	-0.61	0.544
Δl Weighted distribuition	0.939	0.093	10.13	0.000	0.834	0.046	18.03	0.000	0.651	0.113	5.74	0.000
Δl Special offers and discounts	0.023	0.007	3.27	0.001	0.015	0.004	3.45	0.001	0.029	0.008	3.64	0.000
Δl Feature/Display	0.021	0.009	2.22	0.027	0.020	0.004	4.86	0.000	0.024	0.013	1.80	0.072
Δl Relative Price Index	-0.566	0.208	-2.72	0.007	-0.615	0.066	-9.30	0.000	-0.923	0.267	-3.45	0.001
Private Labels												
Lagged Δlshare	-0.167	0.098	-1.70	0.090	-0.167	0.032	-5.24	0.000	-0.179	0.139	-1.28	0.200
Δl Weighted distribuition	0.578	0.344	1.68	0.093	0.932	0.156	5.99	0.000	-0.381	0.206	-1.85	0.065
Δl Special offers and discounts	0.028	0.022	1.28	0.200	0.020	0.023	0.84	0.400	-0.003	0.037	-0.09	0.925
Δl Feature/Display	0.004	0.072	0.05	0.958	0.008	0.011	0.73	0.463	-0.050	0.062	-0.81	0.419
Δl Relative Price Index	-1.402	0.931	-1.51	0.132	-0.629	0.123	-5.12	0.000	0.096	0.714	0.13	0.893
Constant	-0.030	0.002	-11.92	0.000								
N. Obs	11901		d.f.	30								
RMSE	0.29		Wald-Chi2	2220.46								
R_squared	0.28		D-W	2.06								

***Significant at p < 0.01; **Significant at p <0.05; * Significant at p<0.10

Source: The Author

Table A2. VAR analysis for national brand coffee

Δ*lsales*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	**-0.227**	**0.060**	**-3.81**	**0.000**
Lagged Δlpriceindex	0.027	0.110	0.24	0.807
Lagged Δlweighteddistribuition	**0.289**	**0.095**	**3.04**	**0.002**
Lagged Δlpcvonpromo	0.003	0.008	0.4	0.692
Lagged Δlfeatureddisplay	0.000	0.009	0.02	0.982
Δ*lpriceindex*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	0.002	0.012	0.13	0.899
Lagged Δlpriceindex	**-0.372**	**0.059**	**-6.27**	**0.000**
Lagged Δlweighteddistribuition	0.004	0.019	0.23	0.821
Lagged Δlpcvonpromo	-0.001	0.001	-1.11	0.266
Lagged Δlfeatureddisplay	0.001	0.001	0.46	0.648
Δ*lweighteddistribuition*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	0.014	0.029	0.48	0.630
Lagged Δlpriceindex	-0.012	0.057	-0.2	0.840
Lagged Δlweighteddistribuition	-0.081	0.056	-1.44	0.149
Lagged Δlpcvonpromo	0.001	0.003	0.39	0.699
Lagged Δlfeatureddisplay	-0.002	0.004	-0.51	0.611
Δ*lpcvonpromo*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	**0.157**	**0.057**	**2.77**	**0.006**
Lagged Δlpriceindex	0.009	0.073	0.13	0.899
Lagged Δlweighteddistribuition	0.026	0.088	0.29	0.771
Lagged Δlpcvonpromo	**-0.388**	**0.028**	**-13.66**	**0.000**
Lagged Δlfeatureddisplay	0.026	0.028	0.93	0.355
Δ*lfeatureddisplay*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	**0.214**	**0.053**	**4.01**	**0.000**
Lagged Δlpriceindex	-0.102	0.086	-1.19	0.235
Lagged Δlweighteddistribuition	0.079	0.090	0.88	0.378
Lagged Δlpcvonpromo	0.007	0.022	0.34	0.737
Lagged Δlfeatureddisplay	**-0.397**	**0.029**	**-13.48**	**0.000**

***Significant at p < 0.01; **Significant at p <0.05; * Significant at p<0.10
Source: The Author

Table A3. VAR analysis for national brand ready-to-serve juice fruit

Δ*lsales*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	**0.081**	**0.043**	**1.9**	**0.058**
Lagged Δlpriceindex	0.068	0.154	0.44	0.661
Lagged Δlweighteddistribuition	0.045	0.066	0.68	0.498
Lagged Δlpcvonpromo	**0.023**	**0.008**	**3**	**0.003**
Lagged Δlfeatureddisplay	**0.028**	**0.011**	**2.52**	**0.012**
Δ*lpriceindex*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	-0.009	0.010	-0.86	0.392
Lagged Δlpriceindex	**-0.146**	**0.061**	**-2.39**	**0.017**
Lagged Δlweighteddistribuition	**0.034**	**0.017**	**2**	**0.045**
Lagged Δlpcvonpromo	**-0.003**	**0.002**	**-1.67**	**0.095**
Lagged Δlfeatureddisplay	**-0.005**	**0.003**	**-1.78**	**0.075**
Δ*lweighteddistribuition*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	**0.044**	**0.023**	**1.93**	**0.053**
Lagged Δlpriceindex	-0.115	0.091	-1.26	0.206
Lagged Δlweighteddistribuition	0.003	0.053	0.05	0.958
Lagged Δlpcvonpromo	0.002	0.004	0.55	0.584
Lagged Δlfeatureddisplay	0.008	0.005	1.6	0.110
Δ*lpcvonpromo*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	-0.057	0.048	-1.19	0.234
Lagged Δlpriceindex	0.005	0.149	0.03	0.975
Lagged Δlweighteddistribuition	0.056	0.076	0.74	0.457
Lagged Δlpcvonpromo	**-0.413**	**0.030**	**-13.92**	**0.000**
Lagged Δlfeatureddisplay	**-0.057**	**0.032**	**-1.79**	**0.074**
Δ*lfeatureddisplay*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	**0.112**	**0.050**	**2.24**	**0.025**
Lagged Δlpriceindex	0.063	0.146	0.43	0.667
Lagged Δlweighteddistribuition	0.071	0.072	0.98	0.325
Lagged Δlpcvonpromo	**0.053**	**0.023**	**2.35**	**0.019**
Lagged Δlfeatureddisplay	**-0.418**	**0.033**	**-12.73**	**0.000**

***Significant at p < 0.01; **Significant at p <0.05; * Significant at p<0.10
Source: The Author

Table A4. VAR analysis for national brand biscuit/cookie

Δlsales	Coef.	Std. Err.	z	P>z
Lagged Δlsales	**-0.147**	**0.020**	**-7.16**	**0.000**
Lagged Δlpriceindex	**0.092**	**0.043**	**2.13**	**0.033**
Lagged Δlweighteddistribuition	**0.278**	**0.035**	**8.03**	**0.000**
Lagged Δlpcvonpromo	**0.012**	**0.004**	**2.83**	**0.005**
Lagged Δlfeatureddisplay	**0.020**	**0.006**	**3.63**	**0.000**
Δlpriceindex	Coef.	Std. Err.	z	P>z
Lagged Δlsales	-0.003	0.008	-0.4	0.689
Lagged Δlpriceindex	**-0.269**	**0.042**	**-6.34**	**0.000**
Lagged Δlweighteddistribuition	-0.006	0.017	-0.38	0.700
Lagged Δlpcvonpromo	**-0.002**	**0.001**	**-2.37**	**0.018**
Lagged Δlfeatureddisplay	0.000	0.002	0.04	0.966
Δlweighteddistribuition	Coef.	Std. Err.	z	P>z
Lagged Δlsales	**0.038**	**0.012**	**3.16**	**0.002**
Lagged Δlpriceindex	0.021	0.039	0.53	0.594
Lagged Δlweighteddistribuition	-0.020	0.028	-0.72	0.469
Lagged Δlpcvonpromo	-0.001	0.002	-0.81	0.421
Lagged Δlfeatureddisplay	0.001	0.002	0.32	0.751
Δlpcvonpromo	Coef.	Std. Err.	z	P>z
Lagged Δlsales	-0.021	0.025	-0.86	0.392
Lagged Δlpriceindex	**-0.120**	**0.047**	**-2.55**	**0.011**
Lagged Δlweighteddistribuition	**0.132**	**0.037**	**3.54**	**0.000**
Lagged Δlpcvonpromo	**-0.365**	**0.018**	**-20.15**	**0.000**
Lagged Δlfeatureddisplay	0.024	0.020	1.16	0.247
Δlfeatureddisplay	Coef.	Std. Err.	z	P>z
Lagged Δlsales	-0.022	0.026	-0.87	0.386
Lagged Δlpriceindex	-0.071	0.048	-1.48	0.139
Lagged Δlweighteddistribuition	**0.099**	**0.032**	**3.11**	**0.002**
Lagged Δlpcvonpromo	0.016	0.016	0.97	0.333
Lagged Δlfeatureddisplay	**-0.303**	**0.019**	**-15.87**	**0.000**

***Significant at p < 0.01; **Significant at p <0.05; * Significant at p<0.10
Source: The Author

Table A5. VAR analysis for private label coffee

Δ*lsales*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	-0.155	0.127	-1.22	0.221
Lagged Δlpriceindex	0.161	0.178	0.91	0.365
Lagged Δlweighteddistribuition	0.117	0.278	0.42	0.674
Lagged Δlpcvonpromo	0.022	0.038	0.58	0.559
Lagged Δlfeatureddisplay	0.000	0.041	0.01	0.992
Δ*lpriceindex*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	-0.006	0.052	-0.11	0.915
Lagged Δlpriceindex	**-0.414**	**0.139**	**-2.97**	**0.003**
Lagged Δlweighteddistribuition	-0.119	0.186	-0.64	0.522
Lagged Δlpcvonpromo	0.002	0.008	0.28	0.783
Lagged Δlfeatureddisplay	-0.006	0.017	-0.32	0.746
Δ*lweighteddistribuition*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	0.050	0.033	1.54	0.123
Lagged Δlpriceindex	0.140	0.122	1.15	0.248
Lagged Δlweighteddistribuition	-0.127	0.082	-1.56	0.119
Lagged Δlpcvonpromo	-0.009	0.009	-0.94	0.348
Lagged Δlfeatureddisplay	**0.009**	**0.006**	**1.64**	**0.101**
Δ*lpcvonpromo*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	-0.250	0.296	-0.85	0.398
Lagged Δlpriceindex	-0.184	0.439	-0.42	0.675
Lagged Δlweighteddistribuition	0.358	0.434	0.82	0.410
Lagged Δlpcvonpromo	**-0.357**	**0.107**	**-3.34**	**0.001**
Lagged Δlfeatureddisplay	0.126	0.166	0.76	0.446
Δ*lfeatureddisplay*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	0.177	0.171	1.03	0.301
Lagged Δlpriceindex	0.091	0.254	0.36	0.721
Lagged Δlweighteddistribuition	-0.328	0.277	-1.18	0.236
Lagged Δlpcvonpromo	0.141	0.091	1.55	0.122
Lagged Δlfeatureddisplay	**-0.219**	**0.110**	**-2**	**0.046**

***Significant at p < 0.01; **Significant at p <0.05; * Significant at p<0.10
Source: The Author

Table A6. VAR analysis for private label Ready-to-serve juice fruit coffee

Δ*lsales*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	-0.013	0.133	-0.1	0.921
Lagged Δlpriceindex	**0.166**	**0.080**	**2.07**	**0.039**
Lagged Δlweighteddistribuition	0.149	0.111	1.34	0.179
Lagged Δlpcvonpromo	-0.040	0.028	-1.41	0.160
Lagged Δlfeatureddisplay	0.033	0.023	1.43	0.154
Δ*lpriceindex*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	-0.020	0.122	-0.17	0.868
Lagged Δlpriceindex	**-0.274**	**0.135**	**-2.04**	**0.042**
Lagged Δlweighteddistribuition	**0.847**	**0.354**	**2.4**	**0.017**
Lagged Δlpcvonpromo	0.009	0.007	1.45	0.148
Lagged Δlfeatureddisplay	0.011	0.010	1.17	0.243
Δ*lweighteddistribuition*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	**-0.229**	**0.138**	**-1.66**	**0.096**
Lagged Δlpriceindex	-0.058	0.049	-1.17	0.242
Lagged Δlweighteddistribuition	**-0.600**	**0.137**	**-4.38**	**0.000**
Lagged Δlpcvonpromo	0.002	0.008	0.2	0.840
Lagged Δlfeatureddisplay	-0.004	0.010	-0.36	0.718
Δ*lpcvonpromo*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	-0.175	0.708	-0.25	0.804
Lagged Δlpriceindex	0.036	0.071	0.51	0.613
Lagged Δlweighteddistribuition	-0.165	0.195	-0.84	0.399
Lagged Δlpcvonpromo	**-0.447**	**0.134**	**-3.34**	**0.001**
Lagged Δlfeatureddisplay	-0.148	0.130	-1.14	0.255
Δ*lfeatureddisplay*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	0.245	0.460	0.53	0.595
Lagged Δlpriceindex	0.054	0.099	0.55	0.583
Lagged Δlweighteddistribuition	0.083	0.242	0.34	0.733
Lagged Δlpcvonpromo	**0.308**	**0.135**	**2.28**	**0.022**
Lagged Δlfeatureddisplay	**-0.391**	**0.178**	**-2.19**	**0.028**

***Significant at p < 0.01; **Significant at p <0.05; * Significant at p<0.10
Source: The Author

Table A7. VAR analysis for private label biscuit/cookie

Δlsales	Coef.	Std. Err.	z	P>z
Lagged Δlsales	**-0.169**	**0.086**	**-1.97**	**0.049**
Lagged Δlpriceindex	**0.239**	**0.148**	**1.62**	**0.105**
Lagged Δlweighteddistribuition	0.120	0.154	0.78	0.434
Lagged Δlpcvonpromo	0.024	0.018	1.35	0.178
Lagged Δlfeatureddisplay	-0.014	0.016	-0.86	0.390
Δlpriceindex	Coef.	Std. Err.	z	P>z
Lagged Δlsales	0.026	0.026	1.01	0.315
Lagged Δlpriceindex	**-0.268**	**0.084**	**-3.19**	**0.001**
Lagged Δlweighteddistribuition	0.031	0.054	0.58	0.562
Lagged Δlpcvonpromo	0.007	0.008	0.89	0.374
Lagged Δlfeatureddisplay	**-0.010**	**0.006**	**-1.72**	**0.086**
Δlweighteddistribuition	Coef.	Std. Err.	z	P>z
Lagged Δlsales	0.007	0.029	0.25	0.804
Lagged Δlpriceindex	0.083	0.067	1.23	0.217
Lagged Δlweighteddistribuition	0.056	0.114	0.49	0.623
Lagged Δlpcvonpromo	-0.003	0.005	-0.7	0.484
Lagged Δlfeatureddisplay	**-0.019**	**0.010**	**-1.97**	**0.049**
Δlpcvonpromo	Coef.	Std. Err.	z	P>z
Lagged Δlsales	-0.138	0.133	-1.04	0.300
Lagged Δlpriceindex	0.137	0.254	0.54	0.588
Lagged Δlweighteddistribuition	-0.026	0.259	-0.1	0.919
Lagged Δlpcvonpromo	**-0.469**	**0.062**	**-7.58**	**0.000**
Lagged Δlfeatureddisplay	0.101	0.063	1.6	0.110
Δlfeatureddisplay	Coef.	Std. Err.	z	P>z
Lagged Δlsales	**0.133**	**0.067**	**1.99**	**0.047**
Lagged Δlpriceindex	0.131	0.115	1.13	0.258
Lagged Δlweighteddistribuition	**-0.350**	**0.193**	**-1.81**	**0.070**
Lagged Δlpcvonpromo	-0.020	0.043	-0.46	0.644
Lagged Δlfeatureddisplay	**-0.376**	**0.064**	**-5.91**	**0.000**

***Significant at p < 0.01; **Significant at p <0.05; * Significant at p<0.10
Source: The Author

Table A8. VAR analysis for national brand coffee low tier price

Δlsales	Coef.	Std. Err.	z	P>z	
Lagged Δlsales	**-0.2084969**	**0.0880067**	**-2.37**		**0.018**
Lagged Δlpriceindex	0.2993546	0.2039946	1.47		0.142
Lagged Δlweighteddistribuition	**0.2634979**	**0.1058556**	**2.49**		**0.013**
Lagged Δlpcvonpromo	0.0049262	0.0124175	0.4		0.692
Lagged Δlfeatureddisplay	-0.008714	0.018649	-0.47		0.640
Δlpriceindex	Coef.	Std. Err.	z	P>z	
Lagged Δlsales	-0.012317	0.0203603	-0.6		0.545
Lagged Δlpriceindex	**-0.3362697**	**0.1232382**	**-2.73**		**0.006**
Lagged Δlweighteddistribuition	0.0072555	0.0256409	0.28		0.777
Lagged Δlpcvonpromo	-0.0025906	0.0018676	-1.39		0.165
Lagged Δlfeatureddisplay	0.003131	0.0023984	1.31		0.192
Δlweighteddistribuition	Coef.	Std. Err.	z	P>z	
Lagged Δlsales	-0.0230749	0.0333055	-0.69		0.488
Lagged Δlpriceindex	-0.0589131	0.113835	-0.52		0.605
Lagged Δlweighteddistribuition	-0.0906495	0.076721	-1.18		0.237
Lagged Δlpcvonpromo	-0.0005774	0.0047523	-0.12		0.903
Lagged Δlfeatureddisplay	-0.0048369	0.0077001	-0.63		0.530
Δlpcvonpromo	Coef.	Std. Err.	z	P>z	
Lagged Δlsales	**0.203715**	**0.0788404**	**2.58**		**0.010**
Lagged Δlpriceindex	0.2200539	0.1942881	1.13		0.257
Lagged Δlweighteddistribuition	-0.0895173	0.1382988	-0.65		0.517
Lagged Δlpcvonpromo	**-0.3722317**	**0.0412539**	**-9.02**		**0.000**
Lagged Δlfeatureddisplay	0.0807794	0.0500892	1.61		0.107
Δlfeatureddisplay	Coef.	Std. Err.	z	P>z	
Lagged Δlsales	**0.2466652**	**0.0725378**	**3.4**		**0.001**
Lagged Δlpriceindex	-0.1075041	0.1620316	-0.66		0.507
Lagged Δlweighteddistribuition	-0.0049629	0.1362163	-0.04		0.971
Lagged Δlpcvonpromo	0.0289119	0.0356083	0.81		0.417
Lagged Δlfeatureddisplay	**-0.3399931**	**0.0495153**	**-6.87**		**0.000**

***Significant at p < 0.01; **Significant at p <0.05; * Significant at p<0.10
Source: The Author

Table A9. VAR analysis for national brand ready-to-serve juice fruit low tier price

Δlsales	Coef.	Std. Err.	z	P>z	
Lagged Δlsales	**0.2135287**	**0.0710426**	**3.01**		**0.003**
Lagged Δlpriceindex	0.1318676	0.3147783	0.42		0.675
Lagged Δlweighteddistribuition	0.023207	0.0885483	0.26		0.793
Lagged Δlpcvonpromo	-0.0038124	0.014981	-0.25		0.799
Lagged Δlfeatureddisplay	**0.0831424**	**0.0279335**	**2.98**		**0.003**
Δlpriceindex	Coef.	Std. Err.	z	P>z	
Lagged Δlsales	-0.0092676	0.0157792	-0.59		0.557
Lagged Δlpriceindex	-0.0777143	0.0720576	-1.08		0.281
Lagged Δlweighteddistribuition	0.0143726	0.0186343	0.77		0.441
Lagged Δlpcvonpromo	**-0.0073738**	**0.0041969**	**-1.76**		**0.079**
Lagged Δlfeatureddisplay	-0.0083531	0.0055347	-1.51		0.131
Δlweighteddistribuition	Coef.	Std. Err.	z	P>z	
Lagged Δlsales	**0.0785817**	**0.0395345**	**1.99**		**0.047**
Lagged Δlpriceindex	-0.0879239	0.2093139	-0.42		0.674
Lagged Δlweighteddistribuition	0.0280953	0.0716479	0.39		0.695
Lagged Δlpcvonpromo	-0.0040579	0.0084302	-0.48		0.630
Lagged Δlfeatureddisplay	0.0201196	0.0125295	1.61		0.108
Δlpcvonpromo	Coef.	Std. Err.	z	P>z	
Lagged Δlsales	0.0304973	0.0638766	0.48		0.633
Lagged Δlpriceindex	0.2675255	0.2348906	1.14		0.255
Lagged Δlweighteddistribuition	-0.0701041	0.0938155	-0.75		0.455
Lagged Δlpcvonpromo	**-0.4266702**	**0.0484211**	**-8.81**		**0.000**
Lagged Δlfeatureddisplay	-0.0011359	0.045873	-0.02		0.980
Δlfeatureddisplay	Coef.	Std. Err.	z	P>z	
Lagged Δlsales	0.1092641	0.0682252	1.6		0.109
Lagged Δlpriceindex	-0.0635548	0.270661	-0.23		0.814
Lagged Δlweighteddistribuition	0.0953278	0.087613	1.09		0.277
Lagged Δlpcvonpromo	**0.0878764**	**0.0346642**	**2.54**		**0.011**
Lagged Δlfeatureddisplay	**-0.3524161**	**0.062122**	**-5.67**		**0.000**

***Significant at p < 0.01; **Significant at p <0.05; * Significant at p<0.10
Source: The Author

Table A10. VAR analysis for national brand biscuit/cookie low tier price

Δ*lsales*	Coef.	Std. Err.	z	P>z	
Lagged Δlsales	**-0.1659657**	**0.0283871**	**-5.85**	**0**	
Lagged Δlpriceindex	0.0079452	0.0568499	0.14	0.889	
Lagged Δlweighteddistribuition	**0.2280342**	**0.0498925**	**4.57**	**0**	
Lagged Δlpcvonpromo	0.0064184	0.00543	1.18	0.237	
Lagged Δlfeatureddisplay	**0.0325178**	**0.0074332**	**4.37**	**0**	
Δ*lpriceindex*	Coef.	Std. Err.	z	P>z	
Lagged Δlsales	0.00099	0.0110663	0.09	0.929	
Lagged Δlpriceindex	**-0.321956**	**0.0403231**	**-7.98**	**0**	
Lagged Δlweighteddistribuition	0.0067129	0.0184363	0.36	0.716	
Lagged Δlpcvonpromo	**-0.0027936**	**0.0011496**	**-2.43**	**0.015**	
Lagged Δlfeatureddisplay	**-0.0031224**	**0.0013466**	**-2.32**	**0.02**	
Δ*lweighteddistribuition*	Coef.	Std. Err.	z	P>z	
Lagged Δlsales	**0.0427816**	**0.0189924**	**2.25**	**0.024**	
Lagged Δlpriceindex	0.0068043	0.0472843	0.14	0.886	
Lagged Δlweighteddistribuition	**-0.1150232**	**0.0416742**	**-2.76**	**0.006**	
Lagged Δlpcvonpromo	0.0009186	0.0024344	0.38	0.706	
Lagged Δlfeatureddisplay	0.0020114	0.0035231	0.57	0.568	
Δ*lpcvonpromo*	Coef.	Std. Err.	z	P>z	
Lagged Δlsales	0.0063598	0.0319007	0.2	0.842	
Lagged Δlpriceindex	**-0.0499847**	**0.0305222**	**-1.64**	**0.101**	
Lagged Δlweighteddistribuition	0.0500174	0.0313935	1.59	0.111	
Lagged Δlpcvonpromo	**-0.33297**	**0.0262196**	**-12.7**	**0**	
Lagged Δlfeatureddisplay	0.0035394	0.0355016	0.1	0.921	
Δ*lfeatureddisplay*	Coef.	Std. Err.	z	P>z	
Lagged Δlsales	**-0.0545183**	**0.0254584**	**-2.14**	**0.032**	
Lagged Δlpriceindex	-0.0008831	0.0263555	-0.03	0.973	
Lagged Δlweighteddistribuition	0.0442394	0.0354918	1.25	0.213	
Lagged Δlpcvonpromo	0.0177703	0.0251793	0.71	0.48	
Lagged Δlfeatureddisplay	**-0.2944147**	**0.0300584**	**-9.79**	**0**	

***Significant at p < 0.01; **Significant at p <0.05; * Significant at p<0.10
Source: The Author

Table A11. VAR analysis for national brand coffee higher tier price

Δ*lsales*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	**-0.242**	**0.077**	**-3.13**	**0.002**
Lagged Δlpriceindex	-0.058	0.132	-0.44	0.662
Lagged Δlweighteddistribuition	**0.322**	**0.141**	**2.28**	**0.023**
Lagged Δlpcvonpromo	0.002	0.009	0.21	0.835
Lagged Δlfeatureddisplay	0.005	0.010	0.5	0.615
Δ*lpriceindex*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	0.011	0.016	0.68	0.494
Lagged Δlpriceindex	**-0.381**	**0.067**	**-5.67**	**0**
Lagged Δlweighteddistribuition	-0.001	0.026	-0.04	0.97
Lagged Δlpcvonpromo	0.000	0.001	-0.25	0.8
Lagged Δlfeatureddisplay	0.000	0.002	-0.11	0.914
Δ*lweighteddistribuition*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	0.039	0.043	0.9	0.366
Lagged Δlpriceindex	0.002	0.070	0.03	0.978
Lagged Δlweighteddistribuition	-0.088	0.080	-1.11	0.268
Lagged Δlpcvonpromo	0.003	0.005	0.55	0.581
Lagged Δlfeatureddisplay	0.000	0.005	0	0.997
Δ*lpcvonpromo*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	0.099	0.077	1.28	0.199
Lagged Δlpriceindex	-0.071	0.079	-0.89	0.372
Lagged Δlweighteddistribuition	0.143	0.114	1.26	0.208
Lagged Δlpcvonpromo	**-0.402**	**0.039**	**-10.27**	**0**
Lagged Δlfeatureddisplay	-0.004	0.033	-0.13	0.9
Δ*lfeatureddisplay*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	**0.170**	**0.074**	**2.3**	**0.021**
Lagged Δlpriceindex	-0.113	0.103	-1.1	0.271
Lagged Δlweighteddistribuition	0.163	0.121	1.35	0.176
Lagged Δlpcvonpromo	-0.011	0.027	-0.39	0.693
Lagged Δlfeatureddisplay	**-0.427**	**0.036**	**-11.77**	**0**

***Significant at p < 0.01; **Significant at p <0.05; * Significant at p<0.10
Source: The Author

Table A12. VAR analysis for national brand ready-to-serve juice fruit higher tier price

Δ*lsales*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	-0.055	0.046	-1.19	0.233
Lagged Δlpriceindex	0.034	0.160	0.21	0.833
Lagged Δlweighteddistribuition	0.026	0.081	0.32	0.748
Lagged Δlpcvonpromo	**0.035**	**0.009**	**3.84**	**0**
Lagged Δlfeatureddisplay	0.002	0.011	0.2	0.842
Δ*lpriceindex*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	-0.005	0.013	-0.39	0.694
Lagged Δlpriceindex	**-0.191**	**0.085**	**-2.25**	**0.025**
Lagged Δlweighteddistribuition	**0.065**	**0.030**	**2.16**	**0.031**
Lagged Δlpcvonpromo	-0.001	0.002	-0.62	0.536
Lagged Δlfeatureddisplay	-0.003	0.003	-1.17	0.24
Δ*lweighteddistribuition*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	0.011	0.021	0.5	0.619
Lagged Δlpriceindex	-0.122	0.081	-1.51	0.13
Lagged Δlweighteddistribuition	-0.049	0.075	-0.65	0.514
Lagged Δlpcvonpromo	0.004	0.004	1.16	0.247
Lagged Δlfeatureddisplay	0.002	0.004	0.46	0.643
Δ*lpcvonpromo*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	**-0.147**	**0.071**	**-2.09**	**0.037**
Lagged Δlpriceindex	-0.164	0.190	-0.86	0.388
Lagged Δlweighteddistribuition	**0.220**	**0.126**	**1.75**	**0.08**
Lagged Δlpcvonpromo	**-0.405**	**0.037**	**-10.93**	**0**
Lagged Δlfeatureddisplay	**-0.083**	**0.041**	**-2.01**	**0.044**
Δ*lfeatureddisplay*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	0.091	0.069	1.32	0.188
Lagged Δlpriceindex	0.156	0.168	0.93	0.352
Lagged Δlweighteddistribuition	0.027	0.112	0.24	0.809
Lagged Δlpcvonpromo	0.041	0.028	1.45	0.148
Lagged Δlfeatureddisplay	**-0.445**	**0.039**	**-11.54**	**0**

***Significant at p < 0.01; **Significant at p <0.05; * Significant at p<0.10
Source: The Author

Table A13. VAR analysis for national brand biscuit/cookie higher tier price

Δ*lsales*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	**-0.130**	**0.029**	**-4.43**	**0**
Lagged Δlpriceindex	**0.163**	**0.063**	**2.58**	**0.01**
Lagged Δlweighteddistribuition	**0.329**	**0.048**	**6.82**	**0**
Lagged Δlpcvonpromo	**0.016**	**0.006**	**2.48**	**0.013**
Lagged Δlfeatureddisplay	0.010	0.008	1.32	0.185
Δ*lpriceindex*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	-0.006	0.012	-0.51	0.608
Lagged Δlpriceindex	**-0.230**	**0.065**	**-3.51**	**0**
Lagged Δlweighteddistribuition	-0.017	0.026	-0.65	0.518
Lagged Δlpcvonpromo	-0.002	0.002	-1.24	0.216
Lagged Δlfeatureddisplay	0.003	0.003	0.92	0.358
Δ*lweighteddistribuition*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	**0.031**	**0.015**	**2.02**	**0.044**
Lagged Δlpriceindex	0.037	0.057	0.64	0.521
Lagged Δlweighteddistribuition	**0.074**	**0.035**	**2.11**	**0.035**
Lagged Δlpcvonpromo	-0.004	0.003	-1.45	0.148
Lagged Δlfeatureddisplay	-0.002	0.003	-0.59	0.557
Δ*lpcvonpromo*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	-0.052	0.038	-1.39	0.164
Lagged Δlpriceindex	**-0.173**	**0.077**	**-2.26**	**0.024**
Lagged Δlweighteddistribuition	**0.213**	**0.065**	**3.26**	**0.001**
Lagged Δlpcvonpromo	**-0.391**	**0.025**	**-15.6**	**0**
Lagged Δlfeatureddisplay	0.035	0.024	1.46	0.144
Δ*lfeatureddisplay*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	0.004	0.043	0.08	0.932
Lagged Δlpriceindex	-0.115	0.080	-1.43	0.152
Lagged Δlweighteddistribuition	**0.147**	**0.051**	**2.89**	**0.004**
Lagged Δlpcvonpromo	0.013	0.021	0.65	0.515
Lagged Δlfeatureddisplay	**-0.311**	**0.025**	**-12.59**	**0**

***Significant at p < 0.01; **Significant at p <0.05; * Significant at p<0.10
Source: The Author

Table A14. VAR analysis for private label coffee low tier price

Δlsales	Coef.	Std. Err.	z	P>z
Lagged Δlsales	-0.208	0.294	-0.71	0.479
Lagged Δlpriceindex	-0.183	0.973	-0.19	0.851
Lagged Δlweighteddistribuition	0.155	0.972	0.16	0.873
Lagged Δlpcvonpromo	0.053	0.039	1.37	0.171
Lagged Δlfeatureddisplay	-0.021	0.041	-0.5	0.614
Δlpriceindex	Coef.	Std. Err.	z	P>z
Lagged Δlsales	0.021	0.019	1.12	0.261
Lagged Δlpriceindex	-0.083	0.093	-0.9	0.368
Lagged Δlweighteddistribuition	-0.021	0.065	-0.32	0.75
Lagged Δlpcvonpromo	-0.002	0.003	-0.52	0.605
Lagged Δlfeatureddisplay	**0.011**	**0.005**	**2.4**	**0.016**
Δlweighteddistribuition	Coef.	Std. Err.	z	P>z
Lagged Δlsales	-0.049	0.048	-1.02	0.309
Lagged Δlpriceindex	-0.138	0.178	-0.77	0.438
Lagged Δlweighteddistribuition	0.198	0.174	1.14	0.255
Lagged Δlpcvonpromo	0.012	0.010	1.25	0.211
Lagged Δlfeatureddisplay	0.009	0.008	1.18	0.236
Δlpcvonpromo	Coef.	Std. Err.	z	P>z
Lagged Δlsales	-0.262	0.746	-0.35	0.725
Lagged Δlpriceindex	1.279	2.343	0.55	0.585
Lagged Δlweighteddistribuition	-0.045	2.259	-0.02	0.984
Lagged Δlpcvonpromo	**-0.311**	**0.144**	**-2.17**	**0.03**
Lagged Δlfeatureddisplay	0.167	0.170	0.98	0.327
Δlfeatureddisplay	Coef.	Std. Err.	z	P>z
Lagged Δlsales	**1.202**	**0.401**	**3**	**0.003**
Lagged Δlpriceindex	**6.763**	**3.273**	**2.07**	**0.039**
Lagged Δlweighteddistribuition	**-4.590**	**1.528**	**-3**	**0.003**
Lagged Δlpcvonpromo	0.088	0.124	0.71	0.476
Lagged Δlfeatureddisplay	-0.172	0.108	-1.59	0.113

***Significant at p < 0.01; **Significant at p <0.05; * Significant at p<0.10
Source: The Author

Table A15. VAR analysis for private label Ready-to-serve juice fruit coffee low tier price

Δ*lsales*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	-0.013	0.133	-0.1	0.921
Lagged Δlpriceindex	**0.166**	**0.080**	**2.07**	**0.039**
Lagged Δlweighteddistribuition	0.149	0.111	1.34	0.179
Lagged Δlpcvonpromo	-0.040	0.028	-1.41	0.16
Lagged Δlfeatureddisplay	0.033	0.023	1.43	0.154
Δ*lpriceindex*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	-0.020	0.122	-0.17	0.868
Lagged Δlpriceindex	**-0.274**	**0.135**	**-2.04**	**0.042**
Lagged Δlweighteddistribuition	**0.847**	**0.354**	**2.4**	**0.017**
Lagged Δlpcvonpromo	0.009	0.007	1.45	0.148
Lagged Δlfeatureddisplay	0.011	0.010	1.17	0.243
Δ*lweighteddistribuition*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	**-0.229**	**0.138**	**-1.66**	**0.096**
Lagged Δlpriceindex	-0.058	0.049	-1.17	0.242
Lagged Δlweighteddistribuition	**-0.600**	**0.137**	**-4.38**	**0**
Lagged Δlpcvonpromo	0.002	0.008	0.2	0.84
Lagged Δlfeatureddisplay	-0.004	0.010	-0.36	0.718
Δ*lpcvonpromo*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	-0.175	0.708	-0.25	0.804
Lagged Δlpriceindex	0.036	0.071	0.51	0.613
Lagged Δlweighteddistribuition	-0.165	0.195	-0.84	0.399
Lagged Δlpcvonpromo	**-0.447**	**0.134**	**-3.34**	**0.001**
Lagged Δlfeatureddisplay	-0.148	0.130	-1.14	0.255
Δ*lfeatureddisplay*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	0.245	0.460	0.53	0.595
Lagged Δlpriceindex	0.054	0.099	0.55	0.583
Lagged Δlweighteddistribuition	0.083	0.242	0.34	0.733
Lagged Δlpcvonpromo	**0.308**	**0.135**	**2.28**	**0.022**
Lagged Δlfeatureddisplay	**-0.391**	**0.178**	**-2.19**	**0.028**

***Significant at p < 0.01; **Significant at p <0.05; * Significant at p<0.10
Source: The Author

Table A16. VAR analysis for private label biscuit/cookie low tier price

Δ*lsales*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	**-0.265**	**0.091**	**-2.9**	**0.004**
Lagged Δlpriceindex	-0.045	0.331	-0.14	0.892
Lagged Δlweighteddistribuition	0.012	0.179	0.07	0.945
Lagged Δlpcvonpromo	**0.049**	**0.020**	**2.43**	**0.015**
Lagged Δlfeatureddisplay	-0.006	0.016	-0.35	0.723
Δ*lpriceindex*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	0.019	0.025	0.76	0.448
Lagged Δlpriceindex	**-0.266**	**0.077**	**-3.45**	**0.001**
Lagged Δlweighteddistribuition	-0.001	0.045	-0.03	0.974
Lagged Δlpcvonpromo	-0.002	0.004	-0.61	0.544
Lagged Δlfeatureddisplay	-0.004	0.004	-1.02	0.308
Δ*lweighteddistribuition*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	**-0.028**	**0.017**	**-1.63**	**0.103**
Lagged Δlpriceindex	0.123	0.118	1.05	0.296
Lagged Δlweighteddistribuition	-0.067	0.069	-0.97	0.333
Lagged Δlpcvonpromo	-0.001	0.004	-0.25	0.8
Lagged Δlfeatureddisplay	-0.013	0.009	-1.42	0.156
Δ*lpcvonpromo*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	-0.237	0.201	-1.18	0.239
Lagged Δlpriceindex	1.055	0.859	1.23	0.219
Lagged Δlweighteddistribuition	0.003	0.338	0.01	0.992
Lagged Δlpcvonpromo	**-0.419**	**0.077**	**-5.41**	**0**
Lagged Δlfeatureddisplay	0.084	0.084	1.01	0.313
Δ*lfeatureddisplay*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	0.031	0.083	0.37	0.714
Lagged Δlpriceindex	0.262	0.377	0.7	0.487
Lagged Δlweighteddistribuition	-0.104	0.248	-0.42	0.673
Lagged Δlpcvonpromo	-0.051	0.058	-0.89	0.375
Lagged Δlfeatureddisplay	**-0.397**	**0.084**	**-4.74**	**0**

***Significant at p < 0.01; **Significant at p <0.05; * Significant at p<0.10
Source: The Author

Table A17. VAR analysis for private label coffee higher tier price

Δ*lsales*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	**-0.204**	**0.066**	**-3.09**	**0.002**
Lagged Δlpriceindex	0.069	0.097	0.71	0.475
Lagged Δlweighteddistribuition	**0.281**	**0.126**	**2.23**	**0.026**
Lagged Δlpcvonpromo	-0.006	0.009	-0.63	0.531
Lagged Δlfeatureddisplay	0.003	0.010	0.29	0.775
Δ*lpriceindex*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	0.013	0.016	0.8	0.422
Lagged Δlpriceindex	**-0.351**	**0.052**	**-6.74**	**0**
Lagged Δlweighteddistribuition	-0.005	0.029	-0.16	0.872
Lagged Δlpcvonpromo	0.004	0.003	1.1	0.273
Lagged Δlfeatureddisplay	-0.003	0.003	-1.32	0.185
Δ*lweighteddistribuition*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	0.041	0.035	1.17	0.242
Lagged Δlpriceindex	0.044	0.049	0.91	0.365
Lagged Δlweighteddistribuition	-0.071	0.071	-1	0.315
Lagged Δlpcvonpromo	-0.001	0.004	-0.17	0.865
Lagged Δlfeatureddisplay	-0.003	0.005	-0.49	0.623
Δ*lpcvonpromo*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	0.072	0.069	1.03	0.301
Lagged Δlpriceindex	0.018	0.105	0.18	0.861
Lagged Δlweighteddistribuition	0.132	0.107	1.23	0.217
Lagged Δlpcvonpromo	**-0.426**	**0.036**	**-11.8**	**0**
Lagged Δlfeatureddisplay	0.008	0.030	0.28	0.782
Δ*lfeatureddisplay*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	**0.171**	**0.061**	**2.82**	**0.005**
Lagged Δlpriceindex	-0.019	0.078	-0.25	0.803
Lagged Δlweighteddistribuition	0.079	0.109	0.72	0.471
Lagged Δlpcvonpromo	0.000	0.024	0.01	0.992
Lagged Δlfeatureddisplay	**-0.418**	**0.034**	**-12.37**	**0**

***Significant at p < 0.01; **Significant at p <0.05; * Significant at p<0.10
Source: The Author

Table A18. VAR analysis for private label biscuit/cookie higher tier price

Δ*lsales*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	-0.049	0.145	-0.34	0.734
Lagged Δlpriceindex	**0.312**	**0.165**	**1.89**	**0.059**
Lagged Δlweighteddistribuition	0.097	0.256	0.38	0.704
Lagged Δlpcvonpromo	-0.048	0.032	-1.51	0.131
Lagged Δlfeatureddisplay	-0.033	0.030	-1.09	0.274
Δ*lpriceindex*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	0.020	0.048	0.42	0.674
Lagged Δlpriceindex	**-0.263**	**0.095**	**-2.76**	**0.006**
Lagged Δlweighteddistribuition	0.066	0.095	0.7	0.486
Lagged Δlpcvonpromo	0.029	0.026	1.14	0.256
Lagged Δlfeatureddisplay	-0.020	0.015	-1.27	0.203
Δ*lweighteddistribuition*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	0.042	0.054	0.77	0.443
Lagged Δlpriceindex	0.095	0.083	1.14	0.255
Lagged Δlweighteddistribuition	0.110	0.184	0.6	0.551
Lagged Δlpcvonpromo	-0.011	0.013	-0.86	0.391
Lagged Δlfeatureddisplay	-0.030	0.022	-1.39	0.164
Δ*lpcvonpromo*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	0.054	0.174	0.31	0.758
Lagged Δlpriceindex	0.066	0.259	0.26	0.798
Lagged Δlweighteddistribuition	-0.288	0.399	-0.72	0.469
Lagged Δlpcvonpromo	**-0.580**	**0.097**	**-5.97**	**0**
Lagged Δlfeatureddisplay	0.126	0.083	1.5	0.132
Δ*lfeatureddisplay*	Coef.	Std. Err.	z	P>z
Lagged Δlsales	0.217	0.107	2.03	0.043
Lagged Δlpriceindex	0.175	0.140	1.25	0.212
Lagged Δlweighteddistribuition	**-0.599**	**0.296**	**-2.02**	**0.043**
Lagged Δlpcvonpromo	0.047	0.059	0.79	0.428
Lagged Δlfeatureddisplay	**-0.320**	**0.086**	**-3.71**	**0**

***Significant at p < 0.01; **Significant at p <0.05; * Significant at p<0.10
Source: The Author