

# DO TEMPORARY PRICE REDUCTIONS CONTRIBUTE TO THE DEVELOPMENT OF RETAILERS' SHOPPERS' LOYALTY?

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## Abstract

The aim of the present text is to produce a conceptual model to be applied on retailer sales data to explore the possible impact of leaflet advertised temporary price reductions on shopper loyalty to the retailer. Indeed, price promotions in relation to manufacturers' brand loyalty is the subject of consequential analysis, however, approaches focused on loyalty to the retailer remain limited. In addition, there is a lack of knowledge concerning promotions' designs in general, and specifically regarding their potential impact on shoppers' loyalty to the retailer. We consider two dimensions of these designs: percentage and framing. We consider specifically the contribution of product-related discounts. We argue that shoppers' sensitivity may diverge across both. Given the cost of temporary price reductions in respect of investment and time, their optimization, to fit loyal shoppers' potential preferences, may lead to significant performance development for retailers. The model is meant to be further applied on retailer data provided by a Czech retailer.

**Key words:** retail, loyalty, promotion, pricing

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## Introduction

The present text is a conceptual model of a study to be conducted once provided with data from a retailer. The objective is the identification of potential interactions between temporary price reduction and shopper loyalty in the retailing industry, via a case study of a retailer in the Czech Republic. Indeed, building a long-term relationship with their shoppers is a central concern for retailers. Loyal shoppers tend to be the most profitable. In order to attract and retain shoppers, retailers implement promotions. Temporary price reductions (TPRs) are the prevailing type of promotion in the retail industry. Promotions are costly and time-consuming, for both manufacturers, who finance most of them, and for retailers, who implement them. A major threat when considering promotions is that they will not serve to increase loyal shoppers'

satisfaction, but that they will be mainly purchased by opportunistic, i.e., disloyal shoppers. High volumes of sales under promotion are not an objective per se for the retailer, as promoted items have lower margins per unit, which reduces the overall profitability. This paper is presenting a conceptual model of the analysis that will be developed. We will study the interaction between the shopper's preference for certain promotion designs, and its loyalty characteristics - recency, frequency, monetary value (RFM). Regarding the promotion designs, we will consider two aspects: the percentage, and the framing. The percentage being the depth of the reduction (10%; 20%; etc.), and the framing being the form this reduction takes, such as immediate discount or cashback on loyalty card for example. The expected outcome of this study is a model of the relationship between TPR designs purchases and shopper's loyalty. Such an outcome would be achieved via the identification of the prevalence of one of the two aspects of TPR design: percentage or framing in the purchases of the most loyal shoppers. The analysis would detail the preponderance of certain percentages and framings, and of their combinations. Such outcomes would help fine-tune promotional activity. The findings are expected to contribute to the price-based promotion theory, and to have a practical business application regarding promotional investments performance in terms of loyalty building.

## **1 Literature review**

We consider each of the two principal components of this study – temporary price reduction and shopper loyalty – first. Then, to gain perspective on the perimeter chosen for the application to come of the presented conceptual model, we go through a brief overview of the Czech retailing market.

### **1.1 Temporary Price Reductions**

Thanks to the increase in the availability of sales history records, and because of the rising complexity of the components involved, the interest for empirical models highlighting consumers' response to promotions, such as temporary price reductions, has been rising (Soguero-Ruiz et al., 2012).

Temporary price reduction (TPR) is defined as the lowering of the baseline price, by a minimum of 10%, for a maximum of four weeks (GfK, 2020). In other words, TPRs are short-term price discounts. They are a type of trade promotions, financed by manufacturers and implemented by retailers (Kumar et al., 2001). TPRs are the most frequently used type of

promotion in the consumer packaged goods industry (Keller et al., 2019). TPRs are costly (Sriram & Kalwani, 2007), and time-consuming to implement.

The same TPR can be presented in different manners. They can take for example the form of a gift “for each x bought, y offered”, or of bundles “20% off if you buy x and y” (Lee & Yi, 2019). Our cognitive decisions and, thus, preferences can be influenced by the framing of decision problems (*Thinking, Fast and Slow* | Daniel Kahneman | Macmillan, 2011). Observations of consumers’ decisions being affected by the way attributes of a product are expressed are numerous (Aribarg et al., 2017; Chen et al., 1998). However, the different implementations of a price promotion influence on consumers' remains insufficiently studied. Calls for further investigation on the effects of the framing and the depth of the price reduction in a promotion on shoppers’ decision are increasing (Chen et al., 1998; McKechnie et al., 2012). Large-scale population analyses are specifically called for (McKechnie et al., 2012).

In addition, we suspect that not all shoppers are equal when comes to TPRs sensitivity. Indeed, literature underlines that shoppers’ reaction may vary when presented with identic marketing stimuli (Chen et al., 1998; Montazeri et al., 2021).

Analyses regarding price-based promotions tend to focus on the short-term impact, considering aspects such as: quantity purchases of the specific product under promotion during the promotion period, and in the post-promotion period. Up to this year, the lack of research focusing on impacts of TPR percentage and TPR framing on retailer shoppers’ loyalty keeps on being noted (Jia et al., 2018; Montazeri et al., 2021), which represents a major research gap.

## **1.2 Shopper loyalty**

A successful consumer-brand engagement is an imperative to attain a sustainable economic model. The more loyal shoppers a brand has, the more it is successful and profitable (Kotler & Keller, 2006). As a matter of fact, a loyal shopper base generates a secured amount of sales - because they can be forecasted based on their past behavior, and they deliver a regular revenue that improves the profit stream. Reduced marketing costs, coupled with increased sales over time, result in increased profits (Bowen & Chen, 2001). The fast-moving consumer goods sector is characterized by low values per unit, and low margins, with high volumes, and high purchase frequency. Thus, loyalty building is a key factor to secure the precious volumes that enable performance.

### 1.3 The Czech retailing market

According to the Foreign Agricultural Service of the U.S. Department of Agriculture's (USDA) country report, the structure of Czech retailing is very much alike the western market. Foreign-owned groups dominate the market, complemented by smaller local players. German, UK, and Dutch retailers dominate the country's distribution industry: REWE Group's Billa (supermarkets) and Penny Market (discount); Schwarz Group's Lidl (discount) and Kaufland (hypermarkets); Tesco Group's hypermarkets and supermarkets; and Ahold's supermarkets and hypermarkets Albert.

In terms of sales value, hypermarkets account for 1/3, supermarkets for 17%, and discounters for 24%.

When considering price promotions, the Czech retailing market is specifically interesting. Indeed, in the Czech Republic, promotional purchases represent 47% of total FMCG value spent (including fresh), which makes the country rank among the most promotion-sensitive in the world.

In addition, the shoppers are very keen on private labels, and in general quite price sensitive (*Retail Foods Czech Republic 2019 USDA, 2019*).

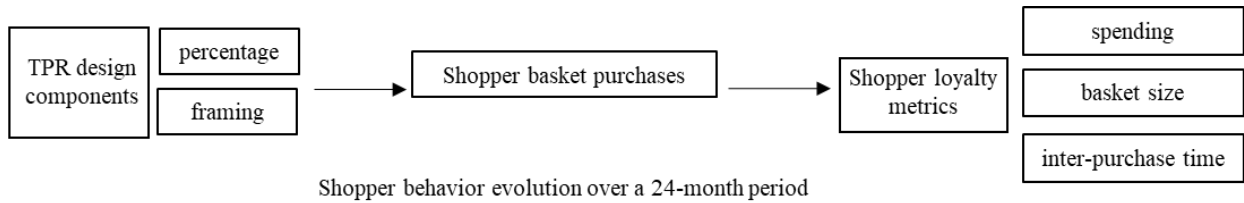
## 2 Conceptual Model

The presented model aims at answering the above-mentioned research gap, which is to understand whether temporary price reductions do contribute to the development of retailers' shoppers' loyalty.

To this extend, product-related discounts are considered. We do not take into account store coupons: i.e., coupons which discounts apply storewide, nor do we consider loyalty rewards based on shopper's specific purchase history, i.e., on its RFM or alike scores. Thus, the inputs are the basket purchases, per shopper id, ranked by date, over a 24-month period. Each basket is detailed by Universal Product Code (UPC). For each UPC, there a mention whether a TPR has been applied. For each TPR, the percentage and the framing are detailed.

In terms of output, following Montazeri et al. (2021) and Jia et al. (2018) approaches: we decompose purchase behavior into three RFM-like aspects: spending (value), basket size (volume, i.e. the number of purchased articles), and inter-purchase time.

**Fig. 1: Fig. 1 Conceptual Framework Design of Temporary Price Reductions and Retail Shoppers' Loyalty relationship**



We will consider, for each shopper id, the types of TPR design that the shopper responds to, which means in this case the types of TPR they purchase the most and, will investigate the potential interaction between these choices and shopper's loyalty evolution.

## 2.1 Sample

The sample will be a field dataset, constituted of primary data, provided by a Czech retailer.

For each active<sup>1</sup> loyalty card, also referred to as 'shopper id', over a 24-month period:

- Per calendar date: Basket purchases with the detail of UPC in-store purchases
  - Regular
  - Discounted (with detail of % and framing)
- Shopper id history
  - RFM characteristics

### Details regarding the coding of the framing

There are four major types of TPR frames used in the retail industry. They are here presented according to the rank of engagement they require, the first being the weakest, the last being the strongest.

1. Immediate discount, directly off the baseline price
2. Special offers, such as on pack offers as "+10% for free"
3. Physical and virtual bundles, such as a BOGOFF (Buy One Get One For Free). Please note that virtual bundles are a variation of physical bundles, they allow the shopper to mix and match similar products such as: same product, different flavors. Thus, we will consider physical and virtual bundles as one type of TPR.
4. TPR in the form of crediting on the loyalty card

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<sup>1</sup> Active meaning that the card holder used it within the last two years.

## 2.2 Measures

The following independent variables will be considered, for each shopper id:

- Shopper's TPR design preferences will be calculated in relation to the total TPR-bearing products purchased by the shopper for each design aspect:
  - Percentage
  - Framing

Control variables

- Shopper promotion purchase value ratio ( $a$ )

$$a = B - A$$

where B is the total value of price-promoted purchases and A the total value of purchases.

Two reasons motivate the addition of this variable.

- The preexistence of a benefit preference, disregarding percentage, and framing aspects.
- Price-promoted items tend to be less profitable for the retailer, to take into account this aspect, we consider the promotion purchase ratio of each shopper.

Dependent variable

- Shopper's loyalty. This variable will be an RFM score.

We can forecast a relationship between purchased TPR percentages (P), TPR framings (F), and the shopper's loyalty to the retailer likelihood (L) such as:

$$L = P \cdot F + a$$

where  $a$  is the promotion purchase value ratio of the shopper and L an RFM score.

The theoretical models rely on evaluating consumer response to TPRs through sociological and psychological perspectives. Empirical models, on the other hand, focus on extracting from databases promotional structures (Soguero-Ruiz et al., 2012). We will here follow the later approach, extracting from the dataset provided by the retailer potential relationships.

As we do not assume any prior structure in terms of data model, any functional form, we will analyze the shopper response to TPRs via a nonparametric regression. A major shortcoming of nonparametric regressions is its slower convergence rate compared to parametric estimators (Soguero-Ruiz et al., 2012). Yet, in the case of this study, we benefit from a high volume of data that will enable a precise estimation of the nonparametric multidimensional regression. As a result, we will use a non-parametric multilevel regression mixture model (NPRMM) as a preliminary, exploratory tool.

### 2.3 Data analysis

The potential outcomes might rank among the following:

- Higher price reduction percentages might incentivize shoppers to spend more in terms of volumes and/ or value. Literature indicates that shoppers tend to react significantly to price-based promotions only starting from a certain threshold (Chen et al., 1998). Consequently, loyalty may increase alongside redemption of higher percentage TPRs.
- Alternatively, the relationship between the reduction percentage and consumer purchases might be an inverted U-shape. Consequently, the relationship between the strength of the reduction percentage and loyalty might be an inverted U-shape as well.
- More engaging reduction framings might incentivize shoppers to spend more in terms of volumes and/ or value. Consequently, loyalty may increase alongside redemption of more engaging TPR framings.
- Alternatively, the relationship between the reduction framing and consumer purchases might be an inverted U-shape. Consequently, the relationship between the degree of engagement of the reduction framing and loyalty might be an inverted U-shape as well.

### Conclusion

The large-scale scope of the study to be conducted with the presented model is meant to enable drawing substantial conclusions. It is expected that the aforementioned temporary price reduction design components, which are percentage and framing, resonate variously with different shoppers. We argue that these variations depend on the loyalty of the shopper. The purpose of the presented model is first to assess whether a relationship between temporary price reductions and the development of retailers' shoppers' loyalty exists. Then, if it does, to enable the identification of temporary price promotion designs that satisfy loyal customers. We do not intend hereby that promotions are meant only to satisfy loyal customer, but we acknowledge that loyalty building is a major preoccupation for retailers. Thus, this is the perspective in which investments are oriented. Promotions being an important investment for retailers, we believe our model can help improve investment allocation as well as increase retailer's global market share thanks to improved shopper loyalty.

## References

- Aribarg, A., Burson, K. A. & Larrick, R. P. (2017). Tipping the Scale: The Role of Discriminability in Conjoint Analysis. *Journal of Marketing Research*, 54(2), 279–292. <https://doi.org/10.1509/jmr.14.0659>
- Bowen, J. T. & Chen, S. (2001). The relationship between customer loyalty and customer satisfaction. *International Journal of Contemporary Hospitality Management*, 13(5), 213–217. <https://doi.org/10.1108/09596110110395893>
- Chen, S.-F. S., Monroe, K. B. & Lou, Y.-C. (1998). The effects of framing price promotion messages on consumers' perceptions and purchase intentions. *Journal of Retailing*, 74(3), 353–372. [https://doi.org/10.1016/S0022-4359\(99\)80100-6](https://doi.org/10.1016/S0022-4359(99)80100-6)
- What is temporary price reduction? (2020). Retrieved from <https://knowledgebase.gfk.com/what-is-temporary-price-reduction>
- Jia, H. (Michael), Yang, S., Lu, X. & Park, C. W. (2018). Do Consumers Always Spend more when Coupon Face Value is Larger? The Inverted U-Shaped Effect of Coupon Face Value on Consumer Spending Level. *Journal of Marketing*, 82(4), 70–85. <https://doi.org/10.1509/jm.14.0510>
- Keller, W. I. Y., Deleersnyder, B. & Gedenk, K. (2019). Price Promotions and Popular Events. *Journal of Marketing*, 83(1), 73–88. <https://doi.org/10.1177/0022242918812055>
- Kotler, P. & Keller, K. L. (2006). *Marketing Management* (12th edition). Pearson College Div.
- Kumar, N. S., Rajiv, S. & Jeuland, A. P. (2001). *Effectiveness of Trade Promotions: Analyzing the Determinants of Retail Pass-Through* (SSRN Scholarly Paper ID 310882). Social Science Research Network. <https://doi.org/10.2139/ssrn.310882>
- Lee, S. & Yi, Y. (2019). “Retail is detail! Give consumers a gift rather than a bundle”: Promotion framing and consumer product returns. *Psychology & Marketing*, 36(1), 15–27. <https://doi.org/10.1002/mar.21154>
- McKechnie, S., Devlin, J., Ennew, C. & Smith, A. (2012). Effects of discount framing in comparative price advertising. *European Journal of Marketing*, 46(11–12), 1501–1522. <https://doi.org/10.1108/03090561211259952>
- Montazeri, S., Tamaddoni, A., Stakhovych, S. & Ewing, M. (2021). Empirical decomposition of customer responses to discount coupons in online FMCG retailing. *Journal of Retailing and Consumer Services*, 58, 102340. <https://doi.org/10.1016/j.jretconser.2020.102340>



Retail Foods Czech Republic 2019. (2019, November 18). Retrieved from <https://fas-europe.org/reports/>

Soguero-Ruiz, C., Gimeno-Blanes, F.-J., Mora-Jimenez, I., Pilar Martinez-Ruiz, M. & Rojo-Alvarez, J.-L. (2012). On the differential benchmarking of promotional efficiency with machine learning modeling (I): Principles and statistical comparison. *Expert Systems with Applications*, 39(17), 12772–12783. <https://doi.org/10.1016/j.eswa.2012.04.017>

Sriram, S. & Kalwani, M. U. (2007). Optimal advertising and promotion budgets in dynamic markets with brand equity as a mediating variable. *Management Science*, 53(1), 46–60. <https://doi.org/10.1287/mnsc.1060.0604>

*Thinking, Fast and Slow* | Daniel Kahneman | Macmillan. (2011). US Macmillan. <https://us.macmillan.com/thinkingfastandslow/danielkahneman/9780374533557>

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