

# More Promotions, More Sales? A Promotional Extent Optimization Model to Beauty Business

Nivaldo Kassouf Pizzinatto<sup>1</sup>, Nadia Kassouf Pizzinatto<sup>1</sup> & Andrea Kassouf Pizzinatto<sup>1</sup>

<sup>1</sup> Master and Doctorate Business Program, Unimep- Universidade Metodista de Piracicaba, Brazil

Correspondence: Nadia Kassouf Pizzinatto, Master and Doctorate Business Program, Unimep- Universidade Metodista de Piracicaba, Brazil. E-mail: [nkp@nadiamarketing.com.br](mailto:nkp@nadiamarketing.com.br)

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## Abstract

This study contributes for marketing theory for analyzes the effect of Promotional extent (weighted percentage of a beauty's company's portfolio which is promoted to amplify sales by sales leverage) and whether it is possible to determine optimal Promotional extent. Multiple regressions were used to determine the effect of Promotional extent on leverage. The analysis was based on 2005-2007 data from both sales and margin from a cosmetics direct sales company. Using the regression equation found, a model was built to analyze and propose optimal Promotional extent. The results suggest that on the data analyzed, promotional leverage is negatively correlated with Promotional extent. Results also suggest that sometimes promoting more products can actually reduce sales, due to reduced promotional leverage. The model can be used as a managerial tool to determine optimal promotional policies.

**Keywords:** promotional investment, sales promotions, promotional extent model

## 1. Introduction

Sales promotions (such as price cuts, buy one-get-one-free) are important parts of most companies' marketing mix (Simpson, 2006: p.223; Gianfagna, 2013), specially to beauty business, which use using direct sales, the catalog, to sell their product. Direct sales depends also on consumer trustworthiness for the success of the business (Shareef et al., 2013). Promotional Sales Techniques and devices commonly used on a temporary basis, to make goods and services more attractive to final customers since it provides them some additional benefit or incentive (Rizvi et al., 2012, p. 2). The Promotional Marketing Association showed on a 2007 report that on average 34% of the marketing budget is allocated on sales promotions, compared to 23% on advertising and 7% on Public Relations (Kerin et al., 2007).

The purpose of sales promotion is to motivate the customers to immediately purchase a particular product thus enhancing the sales, but it is important the use of financial analysis and consumer survey, to analysis the impact of sales promotion (Rizvi et al., 2012). Kornfield et al. (2013) and Rosenthal (2002) showed that on some markets there is an upward trend on promotion. Over the counter medicines is an example mentioned by the author - the IMS Health and Competitive Media Reporting shows that Sales Promotions grew from 9% of total marketing budget on 1996 to 16% on 2000 on this market. Lee (2013) pointed out that coupons contain a set of provisions that retailers to execute when consumers purchase the stipulated products or brands. In addition, they insisted that coupons should be understood as a way to stimulate sales by increasing purchase incentives. Thus, coupons serve as a stimulus for sales by offering discounted prices and additional or free benefits; they also increase consumer purchase motivation within a short period of time.

Given the growing use of promotions, which is common in business beauty management, the need to analyze and understand promotional variables became critical. Several papers, such as Kumar and Swaminathan (2005), Berger and Magliozzi (1992), Bray and Engelen (2007) focus on understanding variables that may affect promotional performance. The authors focused on price cuts, overall market share, and product size / volume. Kumar and Swaminathan (2005) analyzed the intensity of the promotional investment on Sales leverage. Coupons have been used by many consumers for more than a century and prior coupon research has indicated that coupons are effective in increasing short-term revenues across a wide range of countries (Lee, 2010). These coupons are frequently used in fidelity programs: special customers are gifted with additional discounts for chosen products. Traver and Rebstein (1982) analyzed coupons rebates, concluding that the discount and

distribution intensity affect coupons' redeeming rate. Narasimhan, Scott and Sen (1996) focused the role of product's specific characteristics such as storage ease, relative price and others on promotional leverage. Sales promotion is one of the promotional mix including coupons, discounts, rebates, free samples, gifts and incentive items in order to observe an immediate effect on sales, since the customers have positive attitudes towards these (Megdadi & Nusair, 2011: p.53). For Banerjee and Yancey (2010: p. 1) marketers should better understand customer demographic profiles to be able to identify their lifestyle – convenient timings, needs, and cravings, so that coupons can be accordingly designed. Mark et al. (2013, p: 1) believe that despite industry coupon redemption good rates, it is important to investigate how do retailers determine if a promotion is relevant to a consumer or what are the most effective segmentation approaches to guide the creation of targeted promotions.

One implicit variable on the promotional effort is the extension of a company's portfolio that should be promoted in order to leverage sales. For this study's sake, this variable will be called Promotional extent, and is defined as the weighted percentage of a company's portfolio that is promoted on a given time.

It is reasonable to suppose that a policy of promoting more or less the portfolio could affect overall sales, and from this assumption the hypothesis that there is an optimal level was derived. If this hypothesis is true, it would be possible to optimize the results and costs of promotional. In terms of originality, this study adds Promotional extent as a promotional variable to be considered on a company's promotional planning and optimization.

The analysis was based on a Brazilian CFT (Cosmetics, Fragrances and Toiletries) , company, using sales data of two years. Nevertheless, the method can be replicated for any company with stock keeping unit (SKU)-level data (Broeckelmann, 1999; Hudock, 2008 ; Wild, 2002).

### *1.1 Study Hypothesis*

Given the study's scope and goals, the following hypothesis were defined.

If the higher the promotional extent, the higher should be the Sales – but with relative lower leverage. In other words, given an "A" scenario where only one product is promoted, and a "B" scenario where a second comparable product is promoted, on the "B" scenario the overall sales should be higher, but overall sales on "B" will not be twice as "A". So hypothesis H1 is proposed:

#### **H1 – Promotional extent affects promotional leverage.**

The hypothesis is based on the diminishing returns Law, firstly discussed by Anne Robert Jaques Turgot and later by Thomas Malthus. This law defines that in a given system, factor resource addition will lead to increasing returns until a given point, and from this point on returns will decrease (CASE; FAIR, 1999). In the same way, if one has 1000 SKUs (Stock Keeping Unit).

on portfolio and promote 10, it is reasonable to suppose that the promotional leverage effect will be different from promoting 700 out of 1000 SKUs (Stock Keeping Unit).

One analogous effect – even though based on intensity of distribution and not on promotional extent – was found by Rebstein and Traver (1982: p.103). Coupon redeeming rate was affected by the distribution intensity. The rate lowers as more and more coupons are distributed.

The hypothesis will be verified using multiple regression. The dependent variable will be Promotional Leverage, and the independent variables are Promotional extent and Promotional Expenditure (since it is different to promote a product with a 10% price cut or a 40% price cut). The hypothesis will be considered true if the  $\beta$  coefficient for Promotional extent is negative, and significant with  $p < 0.05$ .

Let H1 be true: Promotional Leverage diminishes when more products are promoted. Given that promotional sales by definition have lower profitability than regular sales of the same product, there should be a point where the company will lose nominal contribution margin by promoting more products. The hypothesis was tested using the regression equation found on H1 and through sensitivity analysis to find whether for a given promotional expenditure, there is an optimal Promotional extent level for contribution margin. Given the explanation above, the hypothesis H2 is:

#### **H2 – There is an optimal Promotional extent level.**

## **2. Theoretical Background**

### *2.1 Promotions and Sales Leverage*

Marketers continue to struggle to design effective and profitable promotional campaigns, which are common forms of promotion including coupons, seasonal price discounts, sweepstakes, contests, free samples, trial packages, loyalty reward programs, and free gifts. Promotions vary on multiple dimensions in an attempt to stand

out and entice consumers to make a purchase (Laran & Tsiros, 2013). Kerin et al (2007: p. 500) also state that “sales promotions are sales tools used to support to advertising and personal sales”. Laran and Tsiros (2013) observes that the largest industry to adopt such a promotion is cosmetics, with 60% of department store makeup and 40% of prestige fragrance sales associated with such offers.

From a customer dynamics perspective, most customers migrate from a less valuable state (lower purchase incidence, fewer orders) to a more valuable state (higher purchase incidence, more orders) over time. Each segment reacts differentially to marketing activities. Retail promotions encourage purchase incidence customers, whereas catalogs influence purchase incidence and number of orders. Retail promotions have the strongest effect, significantly influencing the number of orders. The Active segment responds well to both catalogs and retail promotions. Catalogs, for example, serve as a trigger for members of the segment who tend to make purchases in response to catalog promotions (Mark et al., 2013).

These actions are meant to leverage baseline sales. Baseline sales are sales that would occur naturally, without any promotional intervention (Caniato et al., 2004).

### 2.2 Promotional Leverage

Following the topics regarding promotional leverage.

Promotional leverage can be defined as the increase of Sales due to a promotional effort, taking in account the regular sales of a product. (Narasimhan & Neslin, 1996: p.18), mathematically:

$$\frac{\text{Promotional Sale}}{\text{Baseline Sales}} - 1$$

It represents the additional sales given a non –promotional baseline. One question that arises is how to calculate the non-promotional, baseline sales. Caniato et al. (2004) suggest taking a time series of sales and eliminating peaks caused by promotional actions. After one cleans up the time series, the non-promotional baseline may be captured by moving averages or exponential smoothing.

### 2.3 Promotional Leverage and Total Demand

When a customer is faced with a promotion, usually sales rise. One important question is whether promotions can amplify total demand. Customers can buy more because they did not bought from another company, customers can buy more of the promoted product and not buy other non-promoted products, or customers can pile up “inventory”. It can be consider that total market share, for instance, is a restrictive variable for coupons returns. When a product has high market share, probably returns will occur, but with lower promotional leverage. This happens because part of the sales would occur anyway, given the high market-share.

Davis (2005) found evidence of an increase in sales and profits when the product is promoted, but noticed that total market demand not necessarily increase.

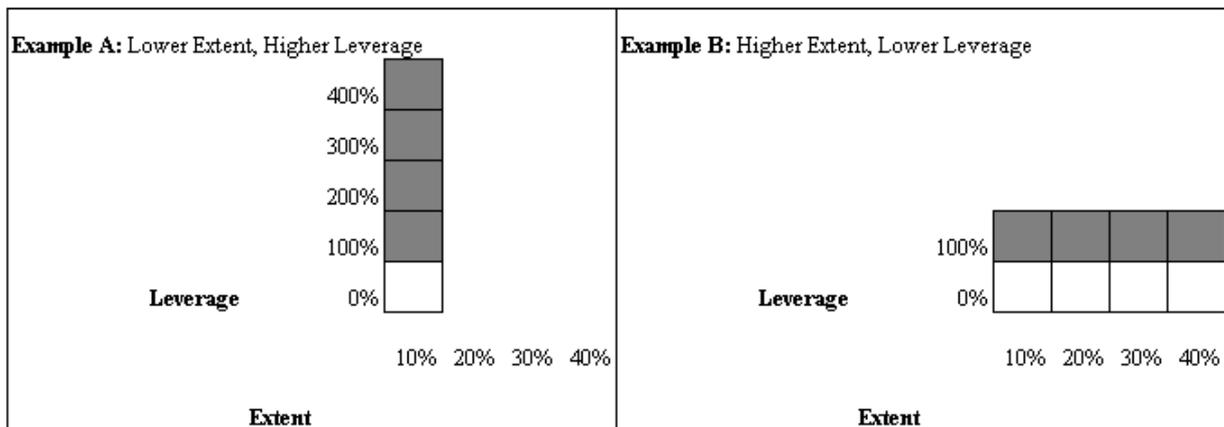
Narasimhan, Scott and Sen (1996) noticed that products that can be easily stored and are non-perishable may leverage more when promoted. This may happen because customers simply anticipate the demand and create “inventory”.

These findings relate with marginal utility, diminishing returns, and total money availability (share of pocket) as related by Case and Fair (1999). It is not the scope of this study to deepen economical theory. But knowing that promotional efforts are affected by these economical principles, one can analyze how to optimize promotional sales.

### 2.4 Promotional Extent and Sales Leverage

When analyzing promotional performance, one question that arises is whether marginal efforts will lead to marginal gains. Kumar and Swaminathan (2005) mention that a higher promotional often leads to higher promotional leverage. For instance, a 30% discount tends to generate more leverage than a 10% discount. Hence, promotional sales may come from *promotional extent* (more products promoted) or *promotional leverage* (higher promotional effort on fewer products). This mechanism can be seen on Figure 1. Assuming a) constant elasticity, b) equal baselines sales, and c) constant cannibalization, one can sell the same number of products by promoting one product with 40% discount, or promoting 4 with 10%. This can be figured out by the gray area resulting from leverage and baseline sales, which is equal on both sides of the picture.

Both strategies are two-edge swords. For instance, a higher discount provokes more leverage, but with higher costs. A low discount, low leverage strategy on a high-sales product – an extent strategy – has by definition a high “sunk-cost”. A lot of people that would buy anyway get a discount.



Notes:

Leverage = Promotional Sales/Baseline Sales - 1

Extent = weighted percentage of a company's portfolio that is promoted.

Figure 1. Leverage and extent: two ways of building promotional sales

Source: developed by the authors, based on data from the company under study.

#### 2.4.1 Time Series Seasonality and Causal Relationship Identification

On properly analyzing sales leverage, one important factor to be considered is seasonality. Seasonality is periodic repetition of certain behavior on a time series, and is frequently found on social and natural processes (Nist & Sematech, 2004).

Seasonality can be detected by visual inspection and auto correlation, lagging "n" periods. For instance, a monthly series of data with seasonality will present auto correlation peaks on lag=12 (Moineddin, 2003).

It is important to try to eliminate seasonality when analyzing sales promotions and sales results. There are several methodologies that aim to eliminate this effect. Centered moving averages- used on Census II methods- and Differentiation – used on Box-Jenkins models – are good examples (Makridakis et al., 1997).

To verify the effect of promotional extent on leverage and promotional results, the following methodological procedures were used.

#### 2.4.2 Data Characteristics and Treatment

The proposed method was applied on a Brazilian, direct sales, cosmetics company. The company works with several product categories, and has the policy of offering at least one promotion per category on each catalog. This softens the issue of different category leverages and performances proposed by Narasimhan, Scott and Sen (1996), since each catalog data comprises every category. Each promotional catalog is a point on the time series, and there are 17 promotional catalogs every year. Figures are represented on Brazilian reais (currency), except when mentioned.

Data used is secondary, obtained from existing databases on the studied company and collected by availability. No random sampling was used to obtain the data.

#### 2.4.3 Baseline Estimate

To calculate leverage, it is necessary to know how much the product would sell without the promotion – the baseline sales. To estimate the baseline, the procedure proposed by Caniato et al. (2004) was used. This procedure recommends excluding promotional peaks from the time series and posterior smoothing by centered moving averages. The example on Figure 2 shows how peaks are substituted by interpolations and how the methodology handles the trend element.

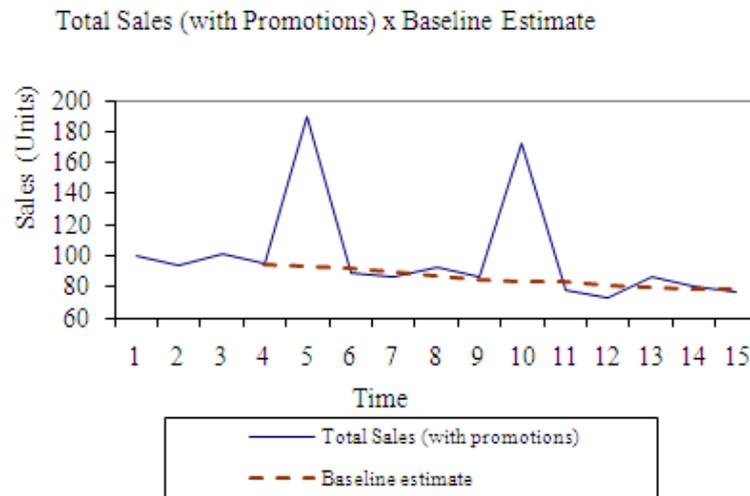


Figure 2. Total sales and baseline estimates

Source: adapted from Caniato *et al* (2004).

### 2.5 Calculating Promotional Extent and Leverage

With all the baseline estimates, one can calculate the weighted percentage of the portfolio that was promoted on each catalog. For the purpose of these study, this percentage will be called **promotional extent**. The calculus is given by the sum of the baselines of all promoted products, divided by the sum of all baselines of all products (promoted or not). Figure 3 will provides an step by step explanation. Following, the table with promotional extent and real sales leverage of products on promotional.

Table 1. Calculating promotional extent and real sales leverage of products on promotion

Product	Estimated Baseline Sales	Status	Real Sales	Leverage
A	30	On Promotion	189	530%
B	40	No Promotion	41	
C	100	No Promotion	100	
D	10	On Promotion	62	520%
E	15	No Promotion	16	
F	8	On Promotion	72	800%
1) Nominal Promotional Extent	30+10+8=48			
2) % Promotional Sales Extent	48/203=24%			
3) Promotional Sales	189+62+72=323			
4) Sales Leverage ([3/1]-1)	(323/38)-1= 573%			

Source: developed by the authors, based on data from the company under study.

To calculate promotional leverage, the sales of all promoted products on a given catalog were added up, and this sum was divided by the sum of the baseline of these promoted products. From the resulting number, a -1 adjustment is needed to isolate the effect of the baseline sales and represent only sales generated by promotions. Hence, when one says that leverage is 400%, it means that promotions added sales equivalent to 4x the baseline sales.

#### a) Promotional expenditure and leverage

Kumar and Swaminathan (2005) mention the intensity of promotional expenditure as leverage driver. To isolate

this effect from promotional extent, the promotional expenditure, measured as perceived discount divided by total sales, was measured. To preserve confidentiality, values were divided by a given factor, what does not change correlation or regression analysis (Martins, 2011).

#### b) Verifying and isolating seasonality

Seasonality was verified on the time series by auto-correlation on total sales, as proposed by Moineddin (2003: p.2). Given that annual seasonality was present with  $p < 0.05$ , data were aggregate on yearly level. Hence, one can identify yearly leverage, promotional extent, and promotional expenditure. From this first aggregate, a yearly moving average was generated to smooth seasonality. This allows a better understanding of the effect of promotional extent and promotional expenditure on leverage. This procedure was based on the Census II method (Makridakis et al., 1997).

#### c) Regression Analysis

From the moving average time series, a multiple regression analysis was performed. A simple regression option was discarded since a co-variation of promotional expenditure and promotional extent could lead to erroneous conclusions.

The independent variables were promotional expenditure and promotional extent, and the dependent variable was promotional leverage. The regression was verified using the F test, and the  $t$  values of  $\beta$  on Promotional extent and Leverage. The  $p$  value used to accept or reject the overall regression and the individual predictors was 0.05.

#### d) Optimizing the scenario

The main managerial goal of the study is to help to determine optimal promotional policies. Thus, from the multiple regression equation previously identified, several scenarios were generated. Holding promotional expenditure constant and changing promotional extent, different leverage scenarios were generated. The leverage output and the promotional extent inputs were combined to calculate total sales using the following model:

$$\text{Total Sales} = \text{Non Promotional Sales} + \text{Promotional Sales}$$

$$\text{Non Promotional Sales} = \text{Total Baseline sales} \times (1 - \text{Promotional extent \%})$$

$$\text{Promotional Sales} = [\text{Total Baseline sales} \times \text{Promotional extent \%} \times (1 + \text{Promotional Leverage})]$$

$$\text{Total Sales} = \text{Total Baseline sales} \times (1 - \text{Promotional extent \%}) + [\text{Total Baseline sales} \times \text{Promotional extent \%} \times (1 + \text{Promotional Leverage})]$$

The logic on non-promotional sales is: if the sum of all estimated baselines is 100, but 20% will be put on promotions, the non-promotional sales should be  $100 \times (1 - 20\%) = 80$ .

On the promotional side, the logic is: if from an overall portfolio that would sell 100 without promotions, 20% was promoted with a 300% leverage, the promotional sales should be  $100 \times 20\% \times (1 + 300\%) = 80$ . Figure 3 visually shows the underlying logic and calculations of the model.

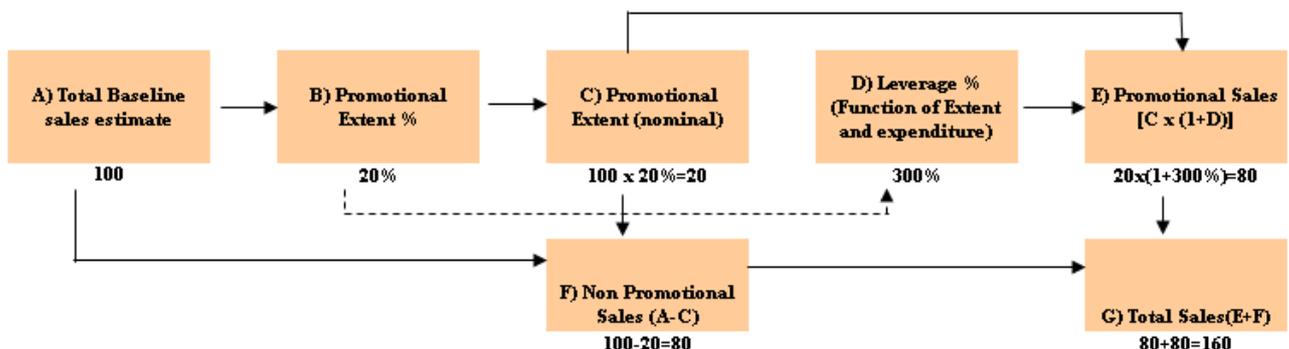


Figure 3. The total sales model

Source: developed by the authors, based on data from the company under study.

Running several scenarios with fixed promotional expenditure and variable promotional extent, the optimal point for total sales and margin were determined as a function of promotional extent.

### 3. Results and Discussion

From the methodological procedures previously discussed, the following results were obtained.

The moving average procedure used to isolate seasonality resulted on the data on Figure 4. Columns D and E, together with promotional expenditure data, were used on regression analysis. The results of the regression analysis can be found on Figure 4.

Catalog (1 year =17 catalogs)	Promotional Sale	Total Baseline Sales	Non-Promotional Sales	Nominal Promotional Extent					
1	60.270	80.343	87.841	14.733					
2	64.436	88.093	96.009	12.221					
3	98.914	84.948	98.355	18.526					
4	86.086	125.565	92.938	12.500					
5	110.083	80.934	100.256	19.840					
6	80.016	85.120	97.993	16.538					
7	116.433	85.649	98.657	21.381					
8	71.894	88.531	93.698	17.891					
9	95.394	89.930	91.920	13.952					
10	100.840	85.290	99.216	16.071					
11	122.147	85.625	100.047	21.830					
12	113.150	96.338	101.623	15.000					
13	108.947	96.415	98.533	18.291					
14	112.965	90.912	101.875	17.340					
15	129.436	86.985	104.350	19.922					
					A) Promotional Sales (Moving Average, 17 catalogs)	B) Non Promotional Sales (Moving Average, 17 catalogs)	C) Nominal Extent (Moving Average, 17 catalogs)	D) Leverage ((A/C)-1)	Promotional Extent, % (C/B)
16	77.303	103.501	109.122	21.541					
17	122.000	91.635	99.990	22.222	1.670.315	1.672.423	299.797	457,1%	17,9%
18	101.114	66.861	86.334	13.554	1.711.159	1.670.916	298.618	473,0%	17,9%
19	89.040	80.058	91.351	12.280	1.735.763	1.666.258	298.676	481,2%	17,9%
20	123.447	88.713	102.165	18.644	1.760.295	1.670.067	298.795	489,1%	17,9%
21	123.042	117.037	96.350	12.907	1.797.252	1.673.479	299.202	500,7%	17,9%
22	140.843	80.447	93.719	14.416	1.828.012	1.666.941	293.778	522,2%	17,6%
23	81.397	89.036	93.945	11.617	1.829.393	1.662.894	288.858	533,3%	17,4%
24	120.485	96.769	98.268	15.092	1.833.445	1.662.504	282.569	548,8%	17,0%
25	80.944	91.908	97.191	11.057	1.842.495	1.665.997	275.735	568,2%	16,6%
26	122.731	86.046	100.156	13.402	1.869.831	1.674.234	275.186	579,5%	16,4%
27	103.026	84.886	95.630	11.128	1.872.017	1.670.648	270.242	592,7%	16,2%
28	105.907	84.485	108.141	15.006	1.855.777	1.678.743	263.418	604,5%	15,7%
29	120.818	134.432	115.037	21.598	1.863.445	1.692.157	270.016	590,1%	16,0%
30	137.182	107.206	116.682	16.802	1.891.680	1.710.306	268.527	604,5%	15,7%
31	138.381	101.089	110.181	19.712	1.917.095	1.718.612	270.900	607,7%	15,8%
32	155.907	96.801	107.866	14.757	1.943.566	1.722.128	265.735	631,4%	15,4%
33	104.521	116.548	120.244	15.563	1.970.784	1.733.250	259.757	658,7%	15,0%
34	122.000	91.635	99.990	22.222	1.970.784	1.733.250	259.757	658,7%	15,0%

Figure 4. Original time series and moving average time series

Source: elaborated by the authors, based on the original data from the company under study.

#### 3.1 The Promotional Extent, Promotional Expenditure and Leverage Relationship

With promotional extent and promotional expenditure as independent variables and leverage as the dependent variable, the results on Figure 5 were obtained. Multiple regression analysis shows an adjusted  $R^2 = 0,93$ . With  $p < 0,05$ , the overall regression is accepted, with  $F = 113,25$ . The slope for promotional extent is negative, and its  $t$  value is  $-3.63$ , which allows  $H1$  to be accepted with  $p < 0,05$ . This means that there are diminishing returns on the promotional extent, since adding more products on promotions leads to less leverage.

It is relevant to mention that results suggest that promotional expenditure tends to elevate leverage, as stated by Kumar and Swaminathan (2005) – the slope for promotional expenditure is positive and relevant with  $p < 0,05$ .

<i>Regression Results</i>				
R múltiplo				0,970
R-Square				0,942
Adjusted R-Square				0,933
Standard Error				0,147
n				17

<i>ANOVA</i>				
	<i>gl</i>	<i>SQ</i>	<i>MQ</i>	<i>F</i>
Regression	2	4,865	2,433	113,256
Residuals	14	0,301	0,021	
Total	16	5,166		

	<i>Coefficient</i>	<i>Std Error</i>	<i>Stat t</i>	<i>P-value</i>
Intercept	6,926	3,393	2,041	0,061
Promotional Expenditure	73,856	32,754	2,255	0,041
Promotional Extent	(33,705)	9,269	(3,636)	0,003

Figure 5. Regression results: leverage as a function of promotional extent and promotional expenditure  
Source: elaborated by the authors, based on data on Figure 5 plus Promotional Expenditure data.

### 3.2 Optimizing Promotional Extent

Given that adding promotional extent diminishes Leverage, and given the fact the promoted products usually sell with lower margins, to identify optimal promotional extent level is desirable. Using the regression equation on Figure 4 and using the Total Sales model proposed on Table 1, several scenarios were run to try to determine an optimal policy for promotional extent. Fixing the promotional expenditure on the levels proposed by company's top management and varying promotional extent, the results on Figure 6 were obtained.

Results suggest that the optimal promotional extent is around 13%, which helps to determine policies and guidelines for promotional planning. Further promotional extent seems to only reduce non-promotional sales on a higher rate than it generates promotional sales. This is caused by the diminishing leverage – and consequent diminishing growth of Promotional Sales- caused by additional Promotional extent, which can be visually understood on Figure 7.

A) Total Baseline Sales	B) Promotional Extent %	C) Nominal Extent (A x B)	D) Leverage % (6,9+73,8 x Prom Exp -33,7 x Prom Extent %)	E) Promotional Sales [C x (1+D)]	F) Non-Promotional Sales (A-C) R\$ 000	G) Total Sales (E+F) em R\$ 000	H) Gross Margin R\$ 000	D) Marginal Revenue (E-C) R\$ 000
115.928	2%	2.319	1336%	33.292	113.610	146.902	63.886	30.973
115.928	4%	4.637	1230%	61.684	111.291	172.976	72.238	57.047
115.928	6%	6.956	1125%	85.177	108.973	194.150	78.963	78.221
115.928	8%	9.274	1019%	103.770	106.654	210.424	84.061	94.496
115.928	10%	11.593	913%	117.463	104.336	221.799	87.531	105.870
115.928	12%	13.911	808%	126.257	102.017	228.274	89.373	112.345
115.928	<b>13,3%</b>	15.418	739%	129.345	100.510	<b>229.855</b>	<b>89.698</b>	<b>113.926</b>
115.928	15%	17.737	633%	130.054	98.191	228.245	88.855	112.317
115.928	17%	20.056	528%	125.863	95.873	221.736	86.385	105.807
115.928	19%	22.374	422%	116.773	93.554	210.327	82.288	94.398
115.928	21%	24.693	316%	102.783	91.236	194.018	76.563	78.090
115.928	23%	27.011	211%	83.893	88.917	172.810	69.211	56.881

Figure 6. Several scenarios for promotional extent

Source: elaborated by the authors, based on regression equation on Figure 6 plus Total Sales model proposed on Figure 4.

The Figure 7 reports the effect of additional Promotional extent on Total Sales and Margins.

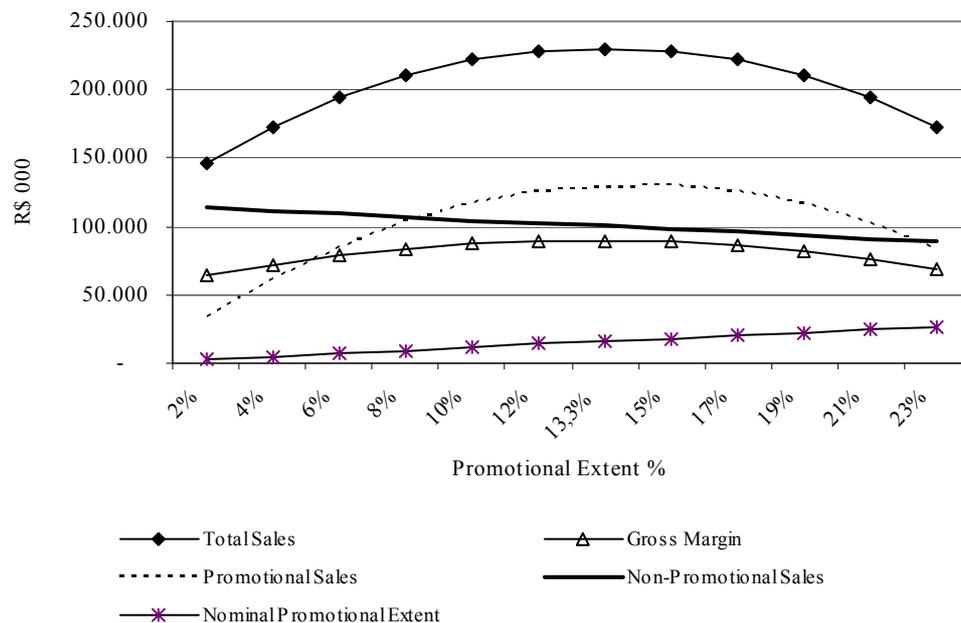


Figure 7. The effect of additional promotional extent on total sales and margins

Source: Elaborated based on data on Figure 6.

### 3.3 Study Limitations and Opportunities for Further Research

The study was conducted on an aggregate level to determine optimal levels. Some product categories may show different patterns. Hence the conclusions are valid only on the aggregate level but do not automatically apply for the category level. A category level analysis is an opportunity for further research. For instance, an optimal policy for a company level Promotional extent may be 16%, but this may change depending on the categories. Face care products may have a different slope for promotional extent than shampoos, and so on.

It is also important to say that data availability was limited, and hence the regression analysis may suffer from over fitting. While this probably won't change the overall conclusion, it is important to mention this caveat on  $R^2$  and another regression matters –  $R^2$  may be overestimated.

Finally, the conclusion applies for this given company. Thus, while the methodology and overall hypothesis may be valid, results will probably vary from company to company.

## 4. Conclusions

On the studied case, Promotional extent negatively affects Promotional Leverage. The managerial conclusion is that the use of promotions to grow Total Sales should be carefully done, because it can be marginally negative for the company. This may happen for several reasons:

a) one can be selling on promotional prices for customers that would buy anyway (once a 10% price cut is given, all customers that would buy anyway pay 10% less). This is a natural and expected “sunk cost” of promotional efforts that is usually counteracted by Promotional Leverage. Considering that Promotional extent may decrease Promotional Leverage and automatically increases the “sunk cost” of a promotion (since more products are promoted and affected by discounts), there may be a point where the promotion does not pay off.

b) customers may have a fixed budget for a given kind of expense (Cosmetics, for instance), and adding more products on promotion can only divide sales. This may explain the diminishing Promotional Leverage. Results suggest that is possible to determine an optimal Promotional extent level to generate policies for promotional planning, using the regression analysis and the Total Sales model proposed on Figure 3.

One important caveat is that this an analysis based on data of only a company. Hence, further research on other companies can verify whether this is a company-specific issue or an overall economical factor on promotional planning.

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