PROMOTIONAL POLITICS, INFLUENCE FACTOR OF ECONOMIC COMPETITIVENESS GROWTH

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Abstract:

In an ever changing economy, a firm's competitiveness is an essential issue for a successful business. Increasing competitiveness by raising the visibility is one of the steps that any business can use.

A good communication for the transmission of relevant information about the company and the products or services is important in the current period. Starting from this goal, we determined the average mix that leads to maximizing audience, using the Solver module of the Excel spreadsheet program. Using this module offers the possibility of determining the optimal combination of variants of promotion according to the restrictions set by the company.

Keywords**:** *promotion, competitiveness, linear programming, optimal solution*

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1. Introduction

Changes in the current economy seem to flicker, so manufacturers must prove their creativity and innovative spirit. Understanding of the existing transformations in the economy determines the success or failure of a business.

"Given the contemporary economic and social dynamism, comprising a growing part of the world states, the successful presence of a company on the market is increasingly difficult. To survive and grow, to face much stronger competition, manifested in the majority of fields, the economic unity must be familiar with the market, to communicate with it, to inform potential customers about its products and services, to receive the buyers or the consumers information." (Papuc, 2004)

Cruceru believes that during the current period, competition is getting stronger day by day, causing competitors to adopt a proactive attitude, able to provide a stable position on the market, but also in the minds of consumers. Attracting consumers towards products or services provided is the goal of any manufacturer.

Most experts believe that a product may be of good quality, have a competitive price and a well chosen distribution network (Papua, 2004), but still, it is needed another force to intervene for it or its image to reach the final consumer. That force is called promotion.

One of promotion techniques that a company can use is advertising. In the present paper, we aimed to show how a business can use linear programming to establish the optimal combination of variants of promotion according to various restrictions.

Optimization, synonymous with mathematical programming when present one or more restrictions symbolizing the available resources (material, financial, labor, time, etc.) is widely used in scientific applications, research, economics, industry, agriculture, etc. The purpose of optimization models is to assist users in making the best decisions in complex situations, thus saving time and money. [5]

2. Economic study

In his paper "Reminiscences about the origins of linear programming" (1982) Dantzig wrote: "Linear programming is viewed as a revolutionary development that gives man the

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possibility of fixing general objectives and to find, through the simplex method, optimal decisions for broad class of decision problems of great complexity " [2].

Today, optimization problems are synonymous with mathematical programming problems and represent those problems in which a function of several variables is either maximized or minimized in relation to a set of restrictions [5].

In order to increase economic competitiveness by increasing visibility among potential customers, a trader decides that for one month, to promote its image and product range.

As methods of promotion are chosen: radio spots at a national radio station, TV spots at a local radio station and advertising in a national newspaper.

The amount allocated for the promotion campaign is that of 15000 euros / week, considering the following restrictions:

- to allow at least 20 radio spots per week;
- the maximum amount paid for radio spots to not exceed 8000 euros / week.

(Table 1) shows the maximum number of weekly broadcasts and in (Table 2) are presented the methods of promotion.

Table 1. Maximum number of weekly broadcasts

Method of promotion	**Radio spot 30" (7^{00}-10^{00})**	**Radio spot 30" (18^{00}-21^{00})**	**Advertising in a national newspaper (12x6,25 cm color, max 1312 characters)**	**TV spot 30" (19^{00}-23^{00})**
Maximum number of weekly broadcasts	25	20	5	10

Table 2. Methods of promotion

Method of promotion	**Advertising rates (euros)**	**Audience obtained by advertising spot (persons)**
Radio spot 30" (time frame M-F 7^{00}-10^{00})	500*	800700***
Radio spot 30" (time frame M-F 18^{00}-21^{00})	400*	400350
Advertising in a national newspaper (M-F)	440**	10732****
TV spot 30" (time frame M-F 19^{00}-23^{00})	340	8000*****

Source: * http://www.bestadvertising.ro/files/rate%20card%20srr%20-%2001%20ian%202015.pdf
** http://www.mediapress.ro/ziare-bucuresti/module-romania-libera-m99.html
*** http://www.paginademedia.ro/2016/01/cele-mai-multe-matinale-radio-au-crescut-in-audienta-gold-cu-dobro-audienta-dublata-intr-un-an
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It aims to determine the media mix that leads to maximizing audience.

Alternatively, to obtain the optimal solution was used the Solver module of the Excel spreadsheet.

Whether x_1 = number of radio spots broadcast weekly in the time frame M-F 7^{00}-10^{00}

x_2 = number of radio spots broadcast weekly in the time frame M-F 18^{00}-21^{00}

x_3 = number of weekly appearances in the national newspaper

x_4 = number of TV spots broadcast weekly in the time frame M-F 19^{00}-23^{00}

The mathematical model of linear programming problem is:

$$\begin{cases} \max f(x) = 800700x_1 + 400350x_2 + 10732x_3 + 8000x_4 \\ 500x_1 + 400x_2 + 440x_3 + 340x_4 \le 15000 \\ 500x_1 + 400x_2 \le 8000 \\ x_1 + x_2 \ge 20 \\ x_1 \le 25 \\ x_2 \le 20 \\ x_3 \le 5 \\ x_4 \le 10 \\ x_i \ge 0\ ,\ i = \overline{1,4} \end{cases}$$

The steps required to obtain the optimal solution using the Solver module are shown in (Figure 1) and (Figure 2).

3	Solutia optima	0	0	0	0		
4	Audienţa obţinută de spotul publicitar	800700	400350	10732	8000	=SUMPRODUCT($B$3:$E$3,B4:E4)	
5							
6							
7		500	400	440	340	=SUMPRODUCT($B$3:$E$3,B7:E7)	15000
8		500	400	0	0	=SUMPRODUCT($B$3:$E$3,B8:E8)	8000
9		1	1	0	0	=SUMPRODUCT($B$3:$E$3,B9:E9)	20
10		1	0	0	0	=SUMPRODUCT($B$3:$E$3,B10:E10)	25
11		0	1	0	0	=SUMPRODUCT($B$3:$E$3,B11:E11)	20
12		0	0	1	0	=SUMPRODUCT($B$3:$E$3,B12:E12)	5
13		0	0	0	1	=SUMPRODUCT($B$3:$E$3,B13:E13)	10

Figure 1. Implementing initial data in the spreadsheet

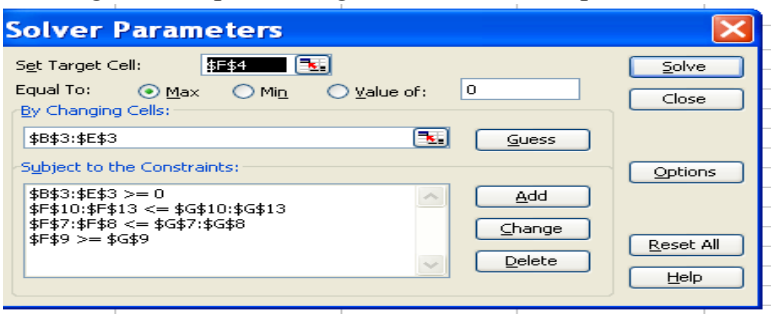

Figure 2. The window "Solver Parameters" completed

Target Cell (Max)

Cell	Name	Original Value	Final Value
$F$4	Audienţa obţinută de spotul publicitar	0	8140660

Adjustable Cells

Cell	Name	Original Value	Final Value
$B$3	Solutia optima	0	0
$C$3	Solutia optima	0	20
$D$3	Solutia optima	0	5
$E$3	Solutia optima	0	10

Constraints

Cell	Name	Cell Value	Formula	Status	Slack
$F$7		13600	$F$7<=$G$7	Not Binding	1400
$F$8		8000	$F$8<=$G$8	Binding	0
$F$9		20	$F$9>=$G$9	Binding	0
$F$10		0	$F$10<=$G$10	Not Binding	25
$F$11		20	$F$11<=$G$11	Binding	0
$F$12		5	$F$12<=$G$12	Binding	0
$F$13		10	$F$13<=$G$13	Binding	0
$B$3	Solutia optima	0	$B$3>=0	Binding	0
$C$3	Solutia optima	20	$C$3>=0	Not Binding	20
$D$3	Solutia optima	5	$D$3>=0	Not Binding	5
$E$3	Solutia optima	10	$E$3>=0	Not Binding	10

Figure 3. The results report

The optimal solution is: x_1=0, x_2=20, x_3=5, x_4=10 and max f(x) = 8140660.

In other words, for 20 radio spots broadcast weekly from M-F in the time frame 18^{00}-21^{00}, 5 weekly issues in the national newspaper and 10 TV spots broadcast weekly from M-F in the time frame 19^{00}-23^{00} is obtained an audience of 8140660 people (and implicitly, potential clients). The commercial agent will give up the promotion through radio spots broadcast weekly from M-F in the time frame 7^{00}-10^{00}.

The report of the sensitivity analysis of input variables provide information regarding: changes of coefficient of variables from objective function, changes of the free terms of restrictions and changes that occur by forcing as a variable to be different from 0, considering that its current value is 0.

The limits of the intervals in which can vary the variables coefficients in the objective function so that the values of variables in the optimal solution does not change are given by: *"Objective Coefficient∓ Allowable Decrease/ Allowable Increase"*. Following the change of coefficients values in the objective function, the optimum value of the objective function will change [5].

Constraints

Cell	Name	Final Value	Shadow Price	Constraint R.H. Side	Allowable Increase	Allowable Decrease
$F$7		13600	0	15000	1E+30	1400
$F$8		8000	4003.5	8000	1400	0
$F$9		20	-1201050	20	0	4
$F$10		0	0	25	1E+30	25
$F$11		20	0	20	1E+30	0
$F$12		5	10732	5	3.181818182	5
$F$13		10	8000	10	4.117647059	10

Figure 4. The report of the sensitivity analysis

The shadow price attached to the first resource (allocated amount) is zero, the change with a unit of it leaving unchanged the optimum value of the objective function.

One unit increase in the maximum amount paid for radio spots lead to an optimum of the objective function of 8144663 people, signifying an increase in audience with 4003 people.

One unit increase in the weekly maximum number of broadcasts corresponding to advertising in a national newspaper leads to a value of audience of 8140660 + 10732 = 8151392 people.

One unit increase in the weekly maximum number of broadcasts corresponding to TV spot leads to a value of audience of 8148660 people.

The value of the audience remains unchanged for an increase by one unit of the weekly maximum number of broadcasts corresponding to the radio spot of 30 " (for both time frames specified above).

3. Conclusions

The way to determine the optimal combination for using a media mix for advertising aimed combining advertising at the mesoeconomic level with the advertising at the macroeconomic level, so as to increase the number of potential customers.

Using these tools in determining the best options for advertising the company and its products show what the company must choose in achieving promotion. At the same time it is reduced the cost with advertising, essential in calculating the cost of production for any company.

However, we must point out that this method of promotion has its limits, because "although advertising is one of the most popular communication techniques, in recent years organizations are turning increasingly towards the use of sales promotion, public relations, selling force, direct marketing, communication through events, wishing to attract more efficiently different audiences." (Cruceru, 2009). The technology available in the contemporary period has produced significant changes in people's lives (Rusăneanu, 2014) but at the same time in the activity of promoting companies.

Given the dynamism of the market economy, we believe that this work can be continued by establishing an optimal promotional mix to attract different population segments to the firm.

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