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THE EFFECT OF LIKING ON THE MEMORIAL RESPONSE TO ADVERTISING: THE CASE OF SMALL CARS

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1. INTRODUCTION

In the past decades, a huge amount of literature has been devoted to the estimation of the effects of advertising on sales using field data (Leone and Schultz, 1980; Vakratsas and Ambler, 1999) and meta-analysis of these studies have shown that advertising effects greatly vary by market and product characteristics (Assmus, Farley and Lehmann, 1984; Sethuraman and Tellis, 1991). However, we cannot stop at behavioral responses, for one obvious reason. Short-term sales measures, including those for single-source panels, can only apply to frequently purchased products, but increasing amounts of advertising are devoted to occasional purchases, or to aims which are not purchases at all, but beliefs and opinions. For these, we have to look how people respond in thoughts and feelings, rather than actions.

For this goal, the use of intermediates variables such as awareness, recall and image can act as surrogates for sales in assessing advertising effectiveness. The present study takes into examination two major intermediate advertising effects, cognition and affect, and has the goal of analyzing if and how the emotional response to advertising drives the memorial response. This is accomplished by building a dynamic model of the relationship between recall and ad pressure with advertising liking, a variable that measures how much people exposed to advertising like or dislike commercials, using the specification of Koyck-type models.

In particular, the main questions the study addresses are if we can find a significant role of ad liking on the memorial response and which patterns of effects ad liking plays on the same. Besides, we investigate if the ad liking has effects on the whole of cognitive awareness or only on a part of it.

The paper is organized as follows. In the next section we summarize previous researches on the relationship between advertising likeability and recall. After we present data, method and results. The last paragraph contains some concluding remarks.

2. RESEARCH ON ADVERTSING LIKEABILITY AND RECALL RELATIONSHIP

It is now well established that the main intermediate effects of advertising are the cognitive dimension of individual's response and the feeling dimension (Vakratsas and Ambles, 1999). Recall is one of the primary variables used in assessing the advertising effectiveness on the cognitive dimension and it is supported by an extensive literature which shows its ability in forecasting future market performance. Many researches have been developed for building advertising scheduling models, aiming at identifing conditions under which different types of media dynamic scheduling strategies are optimal (Zielske, 1959; Strong 1974 and 1977; Zielske and Henry, 1980; Simon, 1982; Mahajan and Muller, 1986; Naik, Mantrala and Sawyer, 1998; Tellis, Chandy and Thaivanich, 2000; Luati and Tassinari, 2005).

According to Hansen (2004), recall works efficiently when central information processes are generated, but its effects are put into question if peripheral information processing takes place. These effects, in turn, could play an influence on consumers by the information processing itself. The emotional response to advertising can be expressed by ad liking, that is an overall response to the commercial which reflects attitudes and emotions that the message produces. Ad liking, of course, does not reflect completely the whole emotional strength that advertising undoubtedly has, but it constitutes an easy measurable variable connected to the flow of emotion which is originated by an ad message. Besides, it has been showed to be highly correlated with the same construct as the multiple-items advertising attitudes does (Brown and Stayman, 1992).

Many hypotheses have been advanced to explain the way likeability acts (Biel and Bridgewater, 1990): among others, when commercial liking increases it is supposed that consumers give a deeper cognitive process to the ad, develop trust into the commercial message and show affect to the advertised brand.

The literature about the relationship between ad liking and recall takes origin from the ARF copy research validity project (Haley and Baldinger, 1991), which qualified ad liking as a good predictor of sales, and from the seminal research (Madden et al., 1988) about the construct of attitude toward an ad, that is the main mediator of consumer response to advertising. In the framework of research about copy testing has been found significative and positive correlations between ad liking and recall (Haley and Baldinger, 1991; Walker and Dubitsky; 1994). Moreover, this correlation varies significantly according to the type of product category classified as approach/avoidance/utilitarian (Youn et al., 2001). Other researches have found, on the contrary, that there is a strong negative correlation between liking and recall, and that ad liking exhibits instead a positive correlation with purchase intent and attention.

The studies about the relationship between recall and ad liking have usually considered only simultaneous correlations, so missing that important part of advertising effect which is the lagged memory one. An important exception is the Bergkvist and Rossiter research (2008) that tracks responses to advertising for the same individuals (students) in the context of simulated campaigns in two circumstances: the first immediately after exposure and the second after a delay during

which advertising campaign took place. In the Bergkvist and Rossiter research the relationships among four constructs (likeability, brand belief, attitude toward the brand and brand purchase intention) are investigated using multivariate path analysis and the authors found that ad likeability in pre-test is not a good predictor of brand attitude after the campaign.

In the present research we analyse ad liking delayed effects as in Bergkvist and Rossiter paper, but using a completely different approach based on time series of campaign tracking measures. For three brands of small cars in the Italian market we estimated Koyck-type models (the standard one and one augmented with ad liking) of the relationship between recall measures (unaided advertising awareness and total advertising awareness) and advertising pressure. The aim of the study is to answer the question of how liking mediates carryover effects of advertising on recall variables and at the same time to provide practitioners a methodology for ex post direct measures of the effectiveness of ad likeability on each memorial response.

3. DATA AND METHODOLOGY

We analyse three small automobiles brands, which we call hereinafter B1; B2, B3. The small automobiles are a category of products requiring high evolvement and an information process of search type. In this category all media are exploited by manufacturers for many weeks a year. Advertising tracking data of product brands of the small automobile category is composed on a weekly basis for the year 2006 from the two Italian commercial advertising tracking monitors GFK-Eurisko and Nielsen Media Research. Relating to advertising pressure, Gross Rating Points (GRPs) which measure the sum of percentages of the target audience reached by advertisements during a given period, and ad investments are monitored, for each media, while the most used memorial indicators in commercial setting every week are collected through personal interviews over a sample of 250 respondents, representatives of Italian population older than 14 years. Particularly for each brand, as regard memorial responses unaided advertising awareness and total advertising awareness (unaided plus aided) are considered.

The data we analyse are derived from intersecting the two previous sources of data and entail for the small car category 3 brands among the most recalled ads. The three brands have very similar profiles in terms of advertising pressures along the analysed period. In mean from 225 to 266 GRPs of advertising are impressed every week by these brands. The mean profiles of campaigns are quite similar with some nuances (Table 1 and Figure 1): B2 shows a time scheduling with absence of pressure along the period, while the other two brands, B1 and B3 have some weeks with a repeated sequence of absence of advertising pressure. B1 shows a homogeneous pattern during the analysed period, while the one of B3 lightly prevails in the second part of the period. Also the advertising awareness, both unaided and total, are quite similar, with a weak prevalence for total advertising awareness of B2. The advertising likeability are instead strongly different among brands with just over one half of respondents likes very much and so B2 advertising in mean and more than 70 per cent like B1 e B3.

TABLE 1

Unaided Advertising Awareness - Total Advertising Awareness

B1	Mean	Std. Dev.	Min	Max
Unaided Advertising Awareness	3.5	1.7	0.7	8.2
Total Advertising Awareness	12.3	3.9	3.5	21.1
Gross Rating Points	266.1	288.5	0.0	930.1
Liking	70.9	16.5	28.8	99.0
B2	Mean	Std. Dev.	Min	Max
Unaided Advertising Awareness	3.2	1.5	0.5	8.0
Total Advertising Awareness	13.4	3.4	6.2	21.4
Gross Rating Points	277.2	178.1	2.8	613.7
Liking	57.5	14.1	14.5	84.6
B3	Mean	Std. Dev.	Min	Max
Unaided Advertising Awareness	3.7	1.6	0.0	7.3
Total Advertising Awareness	12.4	3.6	3.7	20.2
Gross Rating Points	225.4	266.8	0.0	768.4
Liking	72.3	19.4	0.0	100.0

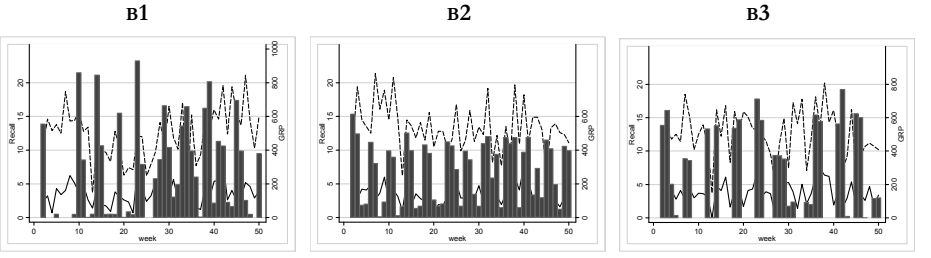

Figura 1 – GRPs (bar), Unaided Advertising Awareness (solid), Total Advertsing Awareness (dash) by brand.

To evaluate the impact of advertising likeability on brand awareness we consider two nested specifications. The first is a classical Koyck model with the moving average error, the second consists in an augmented Koyck model in which the classical specification is augmented by entering the liking variable, as follows:

$$y_t = \lambda y_{t-1} + \beta a_t + \gamma l_t + u_t \tag{1}$$

$$u_t \sim MA(1)$$

where:

y_t indicates the per cent of respondents who recalls the brand advertising at t-th week;

a_t indicates the GRP at t-th week;

l_t indicates the per cent of respondents who likes very much or so the ad at the t-th week;

u_t is a MA(1) error which is alternatively estimated unconstrained and constrained.

When γ=0, the (1) corresponds to the classical Koyck model. Whenever a $\gamma \neq 0$ is estimated a non negligible effect of liking on the recall is found. The MA(1) pa-

rameter is estimated in the first specification by posing the constraint MA(1)=-λ, and in another without constraint.

4. RESULTS

In the empirical analysis, for each of the three brands of the small automobiles category, the two specifications of equation (1) have been estimated by maximum likelihood for unaided and total recalls.

In table 2 the Akaike and Bayes information criteria are presented. In all cases it appears that the model with liking variable improves the goodness of fit for both the unaided and total recall.

TABLE 2

AIC e BIC information criteria for different models

B1	Constrained		Unconstrained	
UAA	Koyck	Augmented Koyck	Koyck	Augmented Koyck
AIC	192.40	186.33	194.05	187.96
BIC	198.01	193.82	201.53	197.31
TAA				
AIC	266.09	261.54	267.27	261.02
BIC	271.70	269.02	274.75	270.37
B2				
UAA	Koyck	Augmented Koyck	Koyck	Augmented Koyck
AIC	176.36	172.20	178.10	173.67
BIC	181.97	179.68	185.59	183.08
TAA				
AIC	255.11	255.77	256.22	-
BIC	260.72	263.25	263.70	-
B3				
UAA	Koyck	Augmented Koyck	Koyck	Augmented Koyck
AIC	191.59	182.61	-	185.38
BIC	197.21	190.10	-	194.73
TAA				
AIC	268.07	260.83	268.01	260.61
BIC	273.69	270.18	273.62	269.96

TABLE 3

Log-likelihood and LR tests results

	B1		B2		B3	
UAA	Koyck	Augmented Koyck	Koyck	Augmented Koyck	Koyck	Augmented Koyck
lnL	-93.20	-89.16	-85.18	-82.10	-92.80	-87.70
LR test		8.08		6.16		10.2
TAA						
lnL	-130.04	-126.77	-124.55	-123.88	-131.04	-125.44
LR test		6.54		1.34		6.54

$\chi^2_{(1)}$:=3.84

The unconstrained results generally do not improve the constrained ones, whilst sometimes they present the drawback to find a corner solution for the maximum likelihood. The LR test of the overall Null that the parameters are jointly zero is strongly rejected in each specification (here not reported). The LR which tests the improved goodness of fit of the specification including liking with respect to the one excluding (Table 3) shows that almost always (excluded the total recall for B2 brand) the inclusion of liking variable improves the fits.

TABLE 4

Estimation results for the Augmented Koyck specification

		Constrained				Unconstrained			
		UAA		**TAA**		**UAA**		**TAA**	
B1		Coeff.	Std.Err.	Coeff.	Std.Err.	Coeff.	Std.Err.	Coeff.	Std.Err.
$Recall_{t-1}$	λ	0.097§	0.294	0.175§	0.155	0.137§	0.305	0.026§	0.158
Grp_t	β	0.002*	0.001	0.002§	0.002	0.002*	0.001	0.002*	0.002
$Liking_t$	γ	0.039*	0.014	0.135*	0.027	0.037*	0.014	0.121*	0.028
MA(1)	θ					-0.054§	0.324	-0.076§	0.266
B2									
$Recall_{t-1}$	λ	0.530§	0.359	0.825*	0.138				
Grp_t	β	0.001§	0.001	0.003*	0.002				
$Liking_t$	γ	0.020§	0.017	0.024§	0.029				
B3									
$Recall_{t-1}$	λ	0.361§	0.188	0.499*	0.145				
Grp_t	β	0.001*	0.001	0.000§	0.002				
$Liking_t$	γ	0.029*	0.009	0.087*	0.024				

TABLE 5

Marginal effects and marginal rate of substitution

	B1		B2		B3	
	UAA	TAA	UAA	TAA	UAA	TAA
Pressure of 100 GRP	0.157	0.209	0.121	0.322	0.118	0.000
Pressure of 10% $Liking_t$	0.387	1.347	0.202	0.241	0.293	0.866
Marginal rate of substitution	-24.606	-64.294	-16.740	-7.491	-24.883	

Thus, from the analysis of goodness of fits it would seem that an effect of liking on the advertising recall may be detected.

The Table 4 presents the estimates of the parameters of the Koyck augmented model for the three brands. As regard as the unaided advertising recall the GRPs and liking coefficients are jointly significant and positive for the B1 and B3 and they share a uniform magnitude, while for the brand B2 the estimated parameters are lower and not significant. All the autoregressive coefficients are not significant. The memorial retention, described by the estimated λ varies from 36 to 53 per cent of the recall at previous week. Due to the different ranges of covariates, to evaluate the impact of advertising policy, we build the marginal effects for a pressure of 100 GRPs in a week or an increase of 10 per cent points.

Main findings (Table 5) show that a pressure of one hundred GRPs a week produces an increase of 0.12 per cent point in UAA for B3 (and for B2 also but not in a significant way) and 0.16 for B1. An increase of 10 per cent points of liking produces an increase of 0.29 per cent points in UAA for B3 (0.20 for B2 but not in a significant way) and 0.39 for B1. One per cent point of liking more allows a save of 25 points of GRPs for B3 and B1, 17 points for B2.

As regard as the total advertising recall all the effects are estimated higher than for unaided recall, but often they result not significant and sometimes they are about zero, even if the augmented Koyck specification are tested to significantly improve the nested Koyck model. These finding are quite condradictory and make any comment on the relationship between liking and TAA very hard.

As a whole, the analysis of these models provides some useful hints and practical managerial implications to answer the question on the effectiveness of single commercial campaigns and the way the messages act. Even with a very short time span it is possible to identify significant positive effects of liking on recall. This finding is found for two out of three brands for UAA. The impact of advertising likeability on the TAA is not supported by empirical findings for none of the considered brands in the analysed period.

5. SOME CONCLUDING REMARKS

It is well established that emotion can play an important role in directing ad viewers interest and recall. So there is little doubt that ad liking has an explicit effect on the ability of a commercial to get attention and stay in consumers memory. Starting from the early 1990's practitioners have made an extensive use of ad likeability measures such as the ones obtained in an ex ante context from copy-test experiments with selected audiences to take decisions about acceptance or rejection of specific campaigns. More recently, the large availability of secondary data coming from ad tracking researches is giving the scientific community the opportunity to produce ex post effectiveness evaluations about qualitative and quantitative impact of advertising campaigns on targets.

In marketing literature there is actually very poor evidence on how ad liking works to build its impact on memorial response to ad pressure. This paper makes an interesting contribution to the debate by providing a useful methodology for assessing ad likeability ex post effectiveness on recall variables. Moreover it points out within a popular dynamic model specification framework that likeability can really mediate carryover effects of advertising pressure on unaided advertising awareness. So even in the context of high-involvement approach products such as small cars advertisers should not ignore or downplay the evidence that liking has significant positive effects on some brands recall. For the practitioners the most important implication of these results is that likeability may play a key role in building consumer attention. Then investment in quality of ad messages may be – even if necessarily – effective and profitable.

Of course, there still remain several important areas for improving future research. First of all, it will be very interesting to achieve more accurate data in terms of both sample size and time series length if we want to obtain more robust evidences from the estimated models. Secondly, we can suppose that the relationships between ad likeability and recall will vary sharply by product category. As a consequence of this consideration, to study other products and services will make our conclusions more generalizable.

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SUMMARY

The effect of liking on the memorial response to advertising: the case of small cars

In marketing literature there is actually very poor evidence of how ad liking works to build its impact on memorial response to ad pressure. This study investigates the problem of the existence of carryover effects of ad liking on recall, by modelling the dynamic patterns of recall, ad pressure and liking by means of the specification of an augmented Koyck-type model and provides a methodology for assessing ad likeability ex post effectiveness on recall variables. The analysis is carried out for the Italian market of small automobiles. Main empirical findings highlight that carryover effects of ad liking can be detected, even if systematically. For practitioners the most important implication is that likeability may play a key role in building consumer attention.