



## An analysis of the role of liking on the memorial response to advertising

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**Abstract:** *The paper addresses the question of how liking mediates the advertising effect onto recall both on short and long run, jointly modelling the patterns of recall and liking to ad pressure, by means of the specification of a vector autoregressive model with GRPs acting as exogenous variable. The analysis is carried out for the Italian markets of shampoo and small automobile, and for each market the results are summarized performing a logistic regression. The approach is very innovative since literature has investigated until now only the simultaneous relationship between advertising and liking. The results show that recall and liking are linked in a dynamic way, with feedback effects in both directions.*

**Keywords:** Advertising, Liking, Recall, VARX models.

### 1. Advertising Effectiveness Measures

To the purpose of measuring advertising effectiveness, recall is one of the primary evaluative measures with an extensive research demonstrating its validity in predicting future market performance; notwithstanding no single alone measure is adequate to evaluate the effectiveness of advertising, which influences consumer behaviour on a number of levels, cognitive-affective-conative, either in sequential order (Lavidge and Steiner, 1961) or not (Heath and Feldwick, 2008 and the references therein). Recall works efficiently when central information processes are generated, while its contribute is debated if peripheral information processing acts (Hansen, 2004): in this context, positive and significant effects of ad on emotional responses are detected, which in turn may or may not implicitly or explicitly -throughout information processing itself- influence consumers. The aim of the present contribute is to analyse the way the advertising influences behaviour by means of the emotions, modelling the relation of recall with advertising liking. Ad liking is an overall reaction to the commercial, which reflects attitudes and emotions mediating the message effects. Of course ad liking does not contains the whole hidden emotional power that advertising undoubtedly has, but it constitutes a quite available measurable construct linked to the amount of emotion flowing through an ad message. It is a complex construct which is hypothesised to act in many ways (Biel and Bridgwater, 1990): among others, as commercial liking increases, consumers are supposed to get better exposures, give more mental processing, engender trust and transfer affect to the advertised brand. On ad liking and recall relationship there is some literature; it mainly originates from the 1990 ARF Copy Research Validity Project (Haley and Baldinger, 1991) which emphasized liking as strong predictor of sales, and from the pioneering paper on the more general construct “Attitude toward the ad” (Madden et al., 1988) as mediator of consumer response. Significant positive correlations between liking and recall were detected into the copy testing framework (Haley and Baldinger, 1991; Walker and Dubitsky, 1994); the correlation is found to significantly vary among product categories classified in terms of consumer experience by Youn et al. (2001) on the basis of survey data. On the negative side, Kastenholz and Young (2003) achieve a strong negative correlation between recall and liking, which instead shows a strong positive correlation with attention and purchase intent. In the present work the perspective is different since a dynamical framework, instead of simultaneous correlation, is exploited. With the purpose of answering the question of how liking mediate the advertising effects onto the recall both on short-



and long-run, the attention falls on an extension of the standard Zielske model (1959), obtained by jointly modelling the dynamical response patterns of recall and liking to ad pressure, through the very general specification of the vector autoregressive model with advertising pressures acting as exogenous variables. Afterwards a synthesis of evidences on the brands is performed.

## 2. Data and methodology

The relationship between recall and ad liking is investigated for the leading product brands of two quite different categories of goods (automobile and shampoo). The first product category is small cars market segment, which is characterised by few brands that hold main share of market. Advertising in the car industry is brand-centred. Typically, car manufacturers use a small number of brands as an umbrella for a variety of models. Buying small cars requires high information process and all media are exploited by manufacturers for many weeks. In the last years, many brands invested their resources on new media, especially Internet. The other product category is shampoo, which is a personal care packaged good with a strongly fragmented market. It prevalently entails low involvement information process into the consumer response and television is the predominant form of advertising. Advertising tracking data of the leading product brands of the two above mentioned categories of goods have been composed on a weekly basis for the year 2006. Relating to advertising pressure, GRPs and ad investments have been monitored, while the most used memorial and liking indicators in commercial setting have been collected over a sample of 250 respondents every week. Particularly for each brand, as regard as memorial responses, top of the mind (TOM); unaided awareness (UA); total awareness, unaided plus aided (TA); unaided advertising awareness (UAA) and total advertising awareness, unaided plus aided (TAA), have been considered. The ad liking construct was measured with reference to all respondents who recalled or recognised one of the selected brand's ads. More specifically the respondents were asked if they like or dislike the advertising recalled for the specified brand in a five-points Likert scale. In the first step we have chosen to extend the Zielske model (1959) to specify a vector autoregressive model, jointly for recall ( $r_t$ ) and ad liking ( $l_t$ ) series, with ad pressure ( $a_t$ ) as an exogenous variable. Thus, assuming  $X_t = (r_t, l_t)'$ , the VAR(p) specification is:

$$C(L)X_t = \Phi d_t + \varepsilon_t, \quad (1)$$

where  $C(L) = I_2 - C_1L - \dots - C_pL^p$  is the matrix polynomial in the lag operator  $L$ ,  $C_j, j=1, \dots, p$  are  $2 \times 2$  parameter matrices,  $d_t$  is the  $s \times 1$  vector of the deterministic components (constant and exogenous),  $\Phi$  is the  $2 \times s$  matrix of the deterministic components' parameters, while  $\varepsilon_t$  is a white noise vector ( $VWN(0, \Sigma)$ ). The classical Zielske model:

$$r_t = c_1 r_{t-1} + \phi_1 a_t + \varepsilon_t, \quad (2)$$

is obtained from the equation (1) posing  $X_t = r_t, p=1$ , that is  $C(L) = 1 - c_1L$ ,  $d_t = a_t$  and  $\Phi = \phi_1$ . Many VAR models were specified to detect the pattern of relationships between recall, liking and ad pressure. Recall was analysed in all the five available measures (TOM, UA, TA, UAA, TAA), liking was specified in terms of top-two-points ratings -L1- (percent answering "like very much" or "like somewhat") or, to detect an effect of disliking too, extreme degrees of liking -L2- (percent answering "like very much" or "like somewhat" or "like not at all"); total GRPs and television GRPs are chosen as ad pressures indicators. As brand product and recall-liking-ad pressure measures combination changes, we may identify if and when liking causes recall, or the opposite, or when advertising has a significant effect on one of the endogenous variables in the VAR. Moreover this setting enables to measure the response of recall and liking to an impulse arising from each other



some time before, describing the dynamical pattern of the relationship. In the second step, to obtain generalisations beyond the individual brands results, we perform a synthesis across the models within each of the two categories, with the rationale to explain the main features of the recall and ad liking relation. To this purpose, specifically for each category, two binary logit models have been estimated posing the dependent variables as follows:  $ICs=1$  if liking significantly appears into recall equation, while  $ICs=0$  otherwise;  $sCI=1$  if recall significantly appears into liking equation, while  $sCI=0$  otherwise. As explanatory variables the different recall-liking-ad pressure measures were used together with information related to ad pressure characteristics such as significance into liking or recall equation, scheduling, type of media, share of GRPs, the so-called share of voice and share of ad investments, globally and for specific media, that is for television (SoV-T, SoI-T), other traditional media such as radio, newspapers and magazines (SoV-RNM, SoI-RNM) and non traditional media as cinema, internet and outdoor (SoV-CIO, SoI-CIO).

### 3. Empirical findings

As a whole, for each product brand in the two categories (6 in the shampoo and 8 in the automobile category) twenty specifications were estimated combining the recall, liking and ad pressure measures ( $5 \times 2 \times 2$ ), whose analysis 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. Here, the main results from the second step of analysis -logit estimations- obtained by means of the previously explained methods are summarised in table 1. In the first panel, describing results on automobile category, the probability of liking to enter in recall equation is showed to increase when unaided memorial responses (top of the mind, unaided brand or advertising awareness)

#### Panel I: small cars

| Dependent:        | <i>P(liking into recall eqn.)</i> |           |         |          | Dependent: | <i>P(recall into liking eqn.)</i> |           |         |          |
|-------------------|-----------------------------------|-----------|---------|----------|------------|-----------------------------------|-----------|---------|----------|
|                   | Estimate                          | Std. Err. | z value | Pr(> z ) |            | Estimate                          | Std. Err. | z value | Pr(> z ) |
| Intercept         | -3.847                            | 0.759     | -5.071  | 0.000    | Intercept  | -0.399                            | 0.294     | -1.357  | 0.175    |
| Unaided aw        | 2.083                             | 0.405     | 5.141   | 0.000    | SoI-RNM    | -0.960                            | 0.487     | -1.970  | 0.049    |
| Percent brand aw. | 0.039                             | 0.015     | 2.564   | 0.010    | SoI-CIO    | 1.409                             | 0.400     | 3.522   | 0.000    |
| SoI-CIO           | 1.048                             | 0.432     | 2.424   | 0.015    |            |                                   |           |         |          |
| SoV-T             | 0.481                             | 0.123     | 3.904   | 0.000    |            |                                   |           |         |          |
| $\ln L(1)$        | -110.854                          | $\rho^2$  | 0.236   |          | $\ln L(1)$ | -109.095                          | $\rho^2$  | 0.141   |          |
| $\ln L(5)$        | -84.73                            | LR        | 52.25   |          | $\ln L(3)$ | -102.250                          | LR        | 13.690  |          |
| AIC               | 179.5                             | Pr(>LR)   | 0.000   |          | AIC        | 210.5                             | Pr(>LR)   | 0.008   |          |

#### Panel II: shampoos

| Dependent:      | <i>P(liking into recall eqn.)</i> |           |         |          | Dependent:      | <i>P(recall into liking eqn.)</i> |           |         |          |
|-----------------|-----------------------------------|-----------|---------|----------|-----------------|-----------------------------------|-----------|---------|----------|
|                 | Estimate                          | Std. Err. | z value | Pr(> z ) |                 | Estimate                          | Std. Err. | z value | Pr(> z ) |
| Intercept       | 0.479                             | 0.719     | 0.667   | 0.505    | Intercept       | -0.956                            | 0.263     | -3.632  | 0.000    |
| Advertising aw. | 1.205                             | 0.442     | 2.727   | 0.006    | Advertising aw. | 0.789                             | 0.391     | 2.015   | 0.044    |
| SoI-TV          | -0.056                            | 0.038     | -1.473  | 0.141    |                 |                                   |           |         |          |
| SoI-RMN         | -0.104                            | 0.029     | -3.590  | 0.000    |                 |                                   |           |         |          |
| SoI-CIO         | 0.029                             | 0.009     | 3.108   | 0.002    |                 |                                   |           |         |          |
| Liking - L2     | 0.936                             | 0.424     | 2.210   | 0.027    |                 |                                   |           |         |          |
| $\ln L(1)$      | -83.03                            | $\rho^2$  | 0.181   |          | $\ln L(1)$      | -77.70                            | $\rho^2$  | 0.239   |          |
| $\ln L(6)$      | -68.00                            | LR        | 30.06   |          | $\ln L(2)$      | -75.65                            | LR        | 4.100   |          |
| AIC             | 148.00                            | Pr(>LR)   | 0.000   |          | AIC             | 155.29                            | Pr(>LR)   | 0.043   |          |

Table 1: Estimates of logit models.



are involved; a further positive increasing contribute is found for higher values of unaided brand awareness. As regard to the media, television share of voice and -more surprisingly also with a lesser confidence- share of ad investments in non traditional media contribute liking to mediate recall. On its turn, recall is found to more probably enter in liking equation for higher values of ad investments in non traditional media, while spending in traditional media acts in the opposite direction. As a whole, the automobile data support the belief that liking contribute to recall and that a feedback effect operates; moreover the relation mainly entails the high-titled unaided memorial responses. In a high ad pressure market, such as the automobile one, a relevant task is performed by the accumulated stock of brand recall; moreover, as regard as the advertising, crucial roles are played by the share of voices in traditional media and the counterpart share of investments in non traditional ones. This happens because in the automobile category the whole brands have a similar scheduling behaviour: in mean, they advertise for 33 on 52 weeks in the considered year, using all the traditional media. In addition a premium is gained by the brands which strongly spend in non traditional or new media such as cinema, Internet and outdoor which effectively show to produce a strong effect of recall on liking. In the second panel, results on shampoo category are presented. The probability of liking to enter in recall equation is showed to increase when the advertising awareness responses are involved (unaided and total advertising awareness), changing as ad pressure in different media changes with significant positive effects for power of investment in non traditional media and negative for traditional ones. A further aspect concerns the liking measures, indicating that the disliking component seems to have here a significant effect into recall. Empirical evidence for recall to liking regards advertising awareness. It is therefore suggested that in the shampoo category liking contribute to recall and that a feedback effect weakly operates too. As preliminary conclusions liking and recall appear undoubtedly linked in a dynamical setting while the product category is a moderator of the way the relationship develops and the role the advertising acts; the feedback cycle is more significant, as expected, from liking to recall than the opposite and it is produced by brand awareness for the high involvement product automobile, and by advertising awareness for the low involvement product shampoo. Effectiveness of investment in all the traditional media pay for a threshold competition noise in the advertising arena, with the consequence that investments in non traditional media (more suitable for the so-called “below the lines” marketing activities) become significant suggesting a media variable scheduling.

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