

# Advertising Effects Under Consumer Heterogeneity – The Moderating Role of Brand Experience, Advertising Recall and Attitude

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## Abstract

Measuring the effects of advertising on consumers' purchase decisions is an important yet difficult task in retailing because the effect can depend on both current and past advertising efforts and on the co-occurrence of other marketing instruments. Consumers may have different evaluations and preferences for advertising that can determine its effectiveness, and these can change over time based on factors such as recall of and attitude toward advertisements. The proposed econometric framework examines the purchase decisions of potentially heterogeneous consumers by means of the widely used random coefficient logit model for aggregate sales and information about perceptions of advertising at the consumer level, that is, tracking data. These tracking data assess individual responses to two consumer metrics that are related to consumers' (I) recent experience with the consumption of the brand and (II) recall and appreciation of advertisements. The empirical application indicates that both consumer metrics and heterogeneity can be important for retailing researchers and managers by revealing the effects of advertising and determining the influence of other marketing instruments, such as price.

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## Motivation

A central problem in retailing and related fields is measuring the effect of marketing instruments, such as advertising activities, on actual sales of consumer goods. Both managers and academics need to quantify these effects on consumer behavior due to explicit and implicit reasons. First, retailers are interested in determining their own advertising efforts or those conducted in collaboration with brand advertisers to determine the outcomes in proportion to efforts or to improve strategic planning. For retailers, it is also implicitly relevant to evaluate and disentangle in the presence of advertising the effect of other marketing instruments such as prices on consumer demand and substitution patterns. Relevant economic outcomes of advertising efforts for fast-moving consumer goods are in general purchases at retail stores. However, for several reasons, the link between

advertising activities and consumer purchase decisions is typically difficult to establish in practice. (a) Advertising strategies develop in a dynamic and competitive setting in which their effects carry over into the future, and a consumer's contact with advertising often diverges from the actual moment of purchase at the retailer. (b) Accounting for advertising efforts is complicated by the co-occurrence of a brand's other marketing instruments and its competitors' marketing instruments. (c) Most importantly, it is well known that consumers can have individual specific and heterogeneous sensitivities to marketing efforts in general, such as for prices or promotions (e.g., Rossi and Allenby 1993; Zenetti and Otter 2014). Therefore, the effectiveness of advertising may differ among individual consumers.

This paper proposes an approach that jointly accounts for issues (a)–(c), particularly with the help of consumer metrics, such as consumers' previous experiences with the brand and their recall of and attitude toward advertising. Advertising effectiveness can theoretically be affected by these measures. Consequently, this study addresses two relevant research questions. (RQ1) *First, the paper investigates the impact of potential heterogeneity in preferences and consumer metrics (that is, a*

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consumer's recall of and attitude toward a brand's advertising and a consumer's recent experience with the brand) on the measurement of advertising effectiveness. (RQ2) Second, the study examines the relevance of this investigation in terms of economic implications by elasticities of demand.

In contrast to previous research, we allow for heterogeneity of preferences and consumer metrics in the analysis of advertising effects on the individual purchase decision. For this purpose, the random coefficient logit model for aggregate data serves as the basis for the analysis. Within this setup, the consumer utility can be subject to both current and past advertising via a goodwill stock in which goodwill and its effects may be altered by consumers' perceptions of advertising. Despite the popularity of the model, there is, to the best of our knowledge, no such approach in the literature. The outcomes of an empirical example show that considering consumer metrics and heterogeneous advertising effects may considerably improve the assessment of advertising effectiveness and their implications for managerial decisions. Therefore, practitioners and academics should carefully examine whether leaving aside heterogeneous consumer metrics is appropriate.

The remainder of this paper is structured as follows. First, we outline the background and details of the measurement of advertising effects in the literature, the proposed conceptual framework of this approach and the hypothesized expected effects. After detailing the elements of investigation of our approach by means of an empirical example, we outline the methodological framework and its practical implementation. Subsequently, the paper discusses the results of the empirical application and concludes with a summary, retailing implications and areas for future research.

## Background and Overview

### *Measuring Advertising Effects in the Literature*

In many product categories, firms budget invest considerably large budgets in advertising. Usually, the purchases made by consumers are the most relevant outcomes of advertising efforts (Manchanda et al. 2006). Based on theoretical grounds, discrete choice models – in which consumers choose among several purchase options or opt not to buy – are well established in the analysis of demand for differentiated products using aggregate data in quantitative retailing and marketing research (e.g., Berry 1994; Chintagunta and Nair 2011). A choice model that allows us to account for consumers' individual and, therefore, heterogeneous preferences is the random coefficient logit model (Berry, Levinsohn, and Pakes 1995). According to Park and Gupta (2011), this model has become the “most widely used approach for analyzing differentiated product markets.” In this context, the concept of goodwill, which is defined as an accumulation of past advertising efforts, has been shown to be an appropriate link between consumer utility and advertising (e.g., Dubé, Hitsch, and Manchanda 2005). Goodwill depreciates over each period, and advertising provides a means to replenish goodwill. A criticism in this area is that research results may be driven by the structure of the model rather than by variation in

the data. For instance, the data analyst must make assumptions about how advertising effectiveness changes over time, because of different amounts of past spendings and shifts due to changes in consumers' evaluations and perceptions of an advertisement.

Advertising agencies or brand managers often focus on directly available measures of consumer metrics, such as aided advertising recall, attitude toward advertising or previous brand experience. The consumer metrics in our empirical example are related to theoretical advertising effectiveness (e.g., Danaher and Mullarkey 2003; De Pelsmacker, Geuens, and Anckaert 2002; Till and Baack 2005; Zenetti et al. 2014). Based on a comprehensive literature review, Vakratsas and Ambler (1999) conclude that advertising effectiveness is driven by the theoretical three-dimensional space of cognition, affection, and experiences related to a brand or product (cf. Hilgard 1980). The cognitive dimension of advertising effectiveness refers to information processing through thinking and mental activity and is typically measured by unaided or aided recall or awareness (Aaker 1991; Barry and Howard 1990). The affective component of advertising effectiveness represents the emotion-based attitudes and internal feelings of a consumer toward the advertisement (Barry and Howard 1990) and can be accounted for in terms of the attitude, liking/appreciation, and desire induced by advertising (Batra and Ray 1986; Cohen, Pham, and Andrade 2008). The conative dimension expresses intended or actual behavior with respect to previous experience and is measured, for example, by consumers' previous experiences or purchase intentions (Barry and Howard 1990; Vakratsas and Ambler 1999).

### *Approach of this Research*

In the empirical analysis of this paper, we investigate advertising effects on consumer purchases of fast-moving consumer goods (collected from retail store checkouts). Thereby, we consider information from surveys of consumers (from approximately 6,700 respondents) gathered by a market research agency on behalf of a national brand manufacturer. In practice, larger manufacturers of consumer goods typically collect disaggregated information from representative samples of consumers on a regular basis, which is known as “tracking data”, to monitor or evaluate consumer perceptions and preferences (cf. e.g., Bruce, Peters, and Naik 2012; KloseDetering 2001). This information source is available for many product categories, but firms may not take full advantage of its potential. Note that repeatedly surveying samples of different consumers avoids bias from the so-called mere-measurement effect (cf. Dholakia and Morwitz 2002; Morwitz and Fitzsimons 2004; Morwitz, Johnson, and Schmittlein 1993), which would otherwise occur when repeatedly surveying participants in longitudinal consumer panels about, for instance, their recall of advertisements. The interviews contain a set of consumer metrics that reflect the theoretically important dimensions of advertising effectiveness, namely, aided advertising recall (*AdRecall*), attitude toward advertising (*Aad*) and previous brand experience (*BrandExpre*) (e.g., Danaher and Mullarkey 2003; De Pelsmacker, Geuens, and Anckaert 2002; Li 2013; Till and Baack 2005). The details

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