Intern. J. of Research in Marketing 28 (2011) 155–165

Contents lists available at ScienceDirect

Intern. J. of Research in Marketing

journal homepage: www.elsevier.com/locate/ijresmar

# The impact of the introduction and use of an informational website on offline customer buying behavior[☆]

J.E.M. van Nierop [a,*], P.S.H. Leeflang [a,b], M.L. Teerling [c], K.R.E. Huizingh [a]

[a] University of Groningen, Faculty of Economics and Business, Groningen, The Netherlands
[b] Luiss Guido Carli University, Department of Economics & Business, Rome, Italy
[c] Telematica Institute, Enschede, The Netherlands

ARTICLE INFO

*Article history:*
First received in 15, August 2009 and was under review for 5½ month
Available online 22 March 2011

Area editor: Peter J. Danaher

*Keywords:*
Informational website
Online and offline behavior
Decomposition

ABSTRACT

Do customers increase or decrease their spending in response to the introduction of an informational website? To answer this question, this study considers the effects of the introduction and use of an informational website by a large national retailer on offline customer buying behavior. More specifically, we study a website's effects on the number of shopping trips and the amount spent per category per shopping trip. The model is calibrated through the estimation of a Poisson model (shopping trips) and a type-II tobit model (the amount spent per category per shopping trip), with effect parameters that vary across customers. For the focal retailer, an informational website creates more bad than good news; most website visitors engage in fewer shopping trips and spend less in all product categories. The authors also compare the characteristics of shoppers who exhibit negative website effects with those few shoppers who show positive effects and thus derive key implications for research and practice.



## 1. Introduction

Virtually every company offers information through its website, and most of these websites enable customers to buy online as well. According to extant categorizations (e.g., Lee & Grewal, 2004; Teo & Pian, 2004), websites can be classified as either informational or transactional; an informational website offers commercial information but does not allow customers to make purchases online, whereas a transactional website does. Most academic research into the effectiveness of websites focuses on the impact of transactional websites (e.g., Moe & Fader, 2004; Sismeiro & Bucklin, 2004). Yet, in reality, many firms maintain websites without transaction functionality, such as Zara, Bailey, Banks and Biddle, Dollar General, IKEA Netherlands, and the major electronics department store MediaMarkt in several European countries. Therefore, we address customer responses to the introduction and use of an informational website that supports an existing bricks-and-mortar retailer that does not have a transactional website.

When an online information search leads to a purchase decision, customers can conduct that purchase in various ways. First, they might buy the product from the website on which they found the information, assuming that the site allows them to do so. Such behavior is still relatively exceptional; online conversion rates rarely exceed 5% and are often much less (Moe & Fader, 2004). Second, customers may decide to leave the site and buy the product at a competitor's website (i.e., "free riding,"Huang, Lurie, & Mitra, 2009). Third, online search might precede offline purchase, an option that is especially likely for search products (e.g., Alba & Lynch, 1997; Weathers, Sharma, & Wood, 2007) and for customers with technology anxiety or trust issues (e.g. Hoffman, Novak, & Peralta, 1999; Roy & Ghose, 2006). A majority of consumers still prefer to purchase in physical stores (i.e., 67%, Accenture, 2007) and use the Internet simply to gather information about product features and prices. That is, they prefer to research online and buy offline (Krillion, 2008; Mendelsohn, Johnson, & Meyer, 2006).

Several studies investigate the effects of new Internet channels on either aggregate firm performance or individual customer behavior (for an overview, see Neslin & Shankar, 2009). Various studies indicate that at the aggregate level, the Internet channel rarely cannibalizes existing channels (e.g., Deleersnyder, Geyskens, Gielens, & Dekimpe, 2002; Geyskens, Gielens, & Dekimpe, 2002), and the effects of an informational channel on performance may be positive (Lee & Grewal, 2004). At the individual customer level, research thus far has been able to determine only the effects of online transactional channels, which have emerged as both positive and negative (Ansari, Mela, & Neslin, 2008; Kushwaha & Shankar, 2007).

But what happens to individual purchase behavior if an organization starts to provide online information to customers? Visiting an

☆ We thank Dennis Fok, Debra Trampe and Bernard Nijstad for useful comments on this paper, as well as the participants at the Marketing Science conference 2009 in Ann Arbor, Michigan.

* Corresponding author at: University of Groningen, Faculty of Economics and Business, P.O. Box 800, 9700 AV Groningen, The Netherlands. Tel.: +31 50 363 6288; fax: +31 50 363 3720.
*E-mail address:* j.e.m.van.nierop@rug.nl (J.E.M. van Nierop).

0167-8116/$ – see front matter © 2011 Elsevier B.V. All rights reserved.
doi:10.1016/j.ijresmar.2011.02.002

informational website seemingly should induce customers to make more store visits and spend more money. However, we posit that the effect could be negative if the online information makes those customers (1) more efficient buyers, who make fewer shopping trips and fewer impulse purchases in the store and/or (2) more critical buyers, who use the information but buy from competitors or consider the information provided insufficient. Gensler, Dekimpe, and Skiera (2007) and Pauwels, Leeflang, Teerling, and Huizing (2011) also demonstrate that the effects of an additional transactional channel depend on the product category; certain product categories are more suitable for online buying than others. Yet no empirical results at the individual level reveal whether customers increase or decrease their spending *across product categories over time* as a result of their use of an informational website.

In this study, we determine the effects of the introduction and usage of an informational website on purchases at the individual customer level. We relate the online search behavior of individual customers of a large retailer to their offline buying behavior using customer panel data that measure how often and how extensively customers visit the website over time, as well as how much and how often they shop at offline stores, and how much they spend in six different categories. We also study how offline buying behavior changes with the use of the website, using purchase data available for the periods before and after the implementation of the website.

We decompose the amount of money spent by a customer in a certain time period into the number of shopping trips in that period and the amount spent per category per trip to answer the following questions:

- Does the use of an informational website change the number of offline shopping trips conducted by individual customers?
- Does the use of an informational website alter the purchase amounts of individual customers in different product categories?

Our results show that the majority of registered website users engage in fewer shopping trips and spend less in all six product categories. Some consumers exhibit some positive behavioral effects, but overall, the effect is negative.

In the remainder of this article, we begin by reviewing prior literature. After discussing the methodology, we describe the data. Then we present the findings and discuss them in light of previous studies. We end with a summary of the main conclusions and their implications.

## 2. Literature review

### *2.1. The impact of the introduction of a transactional website*

Most studies that consider the impact of an added transactional website on firm performance have investigated the effects at either the aggregate (firm) sales level or the individual customer level. The majority focus on the aggregate level. For example, Biyalogorsky and Naik (2003) investigate Tower Records' sales figures during 1989–1999 to determine the extent to which the store's added online transactional channel cannibalized offline sales. The authors find a cannibalization rate of 2.8% from online sales, indicating negligible contemporaneous cannibalization. Coelho, Easingwood, and Coelho (2003) demonstrate that when a company starts using a new channel, it can expect stronger sales growth from this channel than from its traditional channel, probably because the firm is reaching new customer segments. However, Coelho et al. (2003) also indicate that as penetration into these segments increases, growth diminishes, and cannibalization might begin between channels.

In the newspaper industry, Deleersnyder et al. (2002) find hardly any cannibalization between online and offline channels, possibly because different market segments prefer either a hard copy or information on the Internet. They also show that depending on the positioning of the channel portfolio, either cannibalization or synergy between the channels is possible. Geyskens et al. (2002) also focus on the newspaper industry and conclude that firms with fewer direct channels can gain more from using the Internet as an additional channel than can firms with a broader direct-marketing offering. The newspaper industry can easily take advantage of the special economics of information goods delivered over the Internet, but these results may differ for retailers (Bakos & Brynjolfsson, 2000). In a retail setting, Lee and Grewal (2004) show that adding the Internet as a transactional channel does not have an effect on Tobin's Q. Wu, Mahajan, and Balasubramanian (2003), in a study of companies from a broad range of industries, find no performance effect of the addition of the Internet as a transactional channel. In another study, using data from an online grocery store (Peapod), Wu and Rangaswamy (2003) demonstrate that website features can either decrease or increase the amount of search and thereby influence consumers' consideration sets.

From the few studies based on individual customer data, we can infer that (1) marketing efforts can move customers into a particular channel (Ansari et al., 2008), (2) most customers use multiple channels after the addition of an Internet channel (Dholakia, Zhao, & Dholakia, 2005; Gensler et al., 2007), and (3) adding a transactional Internet channel may either decrease (Ansari et al., 2008; Gensler et al., 2007) or increase (Kushwaha & Shankar, 2007) customer buying behavior. Marketing efforts not only influence customer channel choice but also may explain the increase in buying by multichannel customers (Neslin et al., 2006). This argument could hold for informational websites as well, because customers who use both channels gain exposure to more marketing efforts and brands than do those using a single channel. Ansari et al. (2008) provide empirical support for this effect, and Wallace, Giese, and Johnson (2004) show that retailers may receive a loyalty payoff because customers perceive an enhanced portfolio of service outputs provided by multiple channels.

### *2.2. The effect of the introduction and usage of informational websites*

Only a few studies consider the effects of introducing an informational website on offline customer behavior. Viswanathan, Kuruzovich, Gosain, and Agarwal (2007) study consumers' use of online infomediaries and subsequent purchases of cars offline, using an extensive secondary data set gathered from a survey of new automobile purchasers. They find clear differences across consumer segments: those who obtain online price information pay lower prices for the same car than do consumers who obtain online product information.

Firms may invest in informational websites to obtain positive effects in terms of, for example, consumer knowledge, brand perceptions, or buying behavior, but they also run the risk of negative effects on switching behavior and search time. Online information search also can have multiple effects. Hoque and Lohse (1999) show that consumers may make different or more informed decisions in accordance with information they find online. Not only do consumers who use the Internet gain quality and efficiency improvements for their decision making (e.g., Alba & Lynch, 1997; Mick & Fournier, 1998), but firms may also benefit from this effect because consumers might search less for information offline. Ratchford, Lee, and Talukdar (2003) test this claim using cross-sectional survey data for the automotive industry and find that consumers gain efficiency, increased information, and bargaining power from an Internet channel, while car dealers save on the costs of salespeople's time.

Almost all studies use cross-sectional data from surveys. In contrast, we follow individual customers over time and observe how the introduction and use of the informational website affects their actual shopping and spending behavior in multiple categories. We are thus able to combine data regarding actual search behavior in one channel with actual purchase behavior in another for a specific company.