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Is time to reach customer product acceptance influenced by advertising support?

¿Influye el apoyo publicitario en el tiempo de aceptación del producto por parte del cliente?

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Abstract

During the worldwide pandemic many businesses started or significantly increased their online presence on major e-commerce platforms either as vendors or as sellers. These small and medium businesses need to understand what level of advertising support they need, if any, and how it can impact their performance objectives. This paper investigates how advertising influences the timing of online customer reviews after a product introduction at a major retailer with both physical stores and online e-commerce presence open to both business sellers and vendors of various sizes. The faster time to reach customer reviews is a proxy of customer product acceptance and should inform online businesses on their advertising needs when they introduce their products on e-commerce platforms. This paper demonstrates that without advertising support the time needed to reach ten customer reviews increases by 46%.

Keywords

Advertising; customer; e-commerce; influence; product; reviews.

1. Introduction

The process of digital transformation accelerated by the pandemic affected almost all online and offline businesses and forced them to face questions on how to position their online presence and what advertising budget, if any, should they allocate to each of their products. To make this decision, the sellers need to quantify the benefits of advertising and its impact on their performance metrics, e.g. Layugan (2020). This research focuses on the number of customer reviews and the time needed to reach a specific number of earned customer reviews.

The number and timing of customer reviews is a very important success metric since it indicates how fast customers familiarize themselves with a product after its online introduction. It indicates wider customer acceptance of a product since the number and ranking of customer reviews is correlated with sales and customer satisfaction.

A large body of marketing research documented the advertising impact on business performance metrics of a product both online and in-store (brick and mortar). It is well-known that advertising support affects various performance benchmarks, e.g. the amount of sales, the number of pre—purchase product page visits (Pauwels & van Ewijk 2020), at—purchase conversion rates (DeHaan et al. 2016) and post—purchase customer reviews (Schoenmuller et al. 2020). Advertising support influences customer acceptance of a product since and as known for a long time, e.g. Lavidge & Steiner (1961), it helps prospective customers to learn about the new product and encourages them to buy.

The success of each product is ultimately determined by its fulfillment of customer needs and its value. Nevertheless, this research explores whether advertising influences the number and timing of customer reviews immediately after the product becomes available online. This paper demonstrates that advertising support significantly reduces the time needed to reach the initial ten customer reviews compared to products without advertising support in our sample of Walmart.com public data.

Online sellers should know that free online reviews are not a substitute to advertising according to Hollenbeck, Moorthy & Proserpio (2019). E-commerce has added post-purchase online reviews to textbook 'consumer journey' and has provided inconspicuous real-time measures of what customers actually do, per Pauwels & van Ewijk (2020). This paper demonstrates the advertising impact on this metric and quantifies the reduction of the time it takes products to accumulate initial customer reviews.

2. Research framework

Advertising support increases the success probability of the products after their introduction to the market both offline and online, and therefore increases the company market value, e.g. Srinivasan et al. (2009), Park et al (2019), Ma & Du (2018), Kireyev et al. (2016). Customer reviews have a strong influence on prospective customers, even more so on e-commerce sites than on social media sites Babić Rosario et al. (2020), Feng & Papatla (2012).

Customers read online reviews to reduce the risk associated with a purchase decision, and a higher number of online reviews therefore increases the probability of online product success per Maslowska et al. (2017). Customer reviews are correlated with higher sales, e.g. Archak et al. (2011), Lu et al. (2018). Furthermore, analysis of online retailers reveals a higher purchase probability of higher priced products with greater number of reviews per Maslowska et al. (2017). The time needed for a product to reach mainstream customer acceptance is extremely import to the sellers and advertisers since it heavily impacts ROI and Net Present Value of the considerable investment their companies spend on developing and introducing online or off-line products per Golder & Tellis (1997), Tellis (2005).

3. Methodology

This research assumes that whereas a product can earn customer reviews with or without advertising, advertising support can help a product earn customer reviews faster.

The marketing materials of e-commerce platforms, e.g. Acker (2019), Bucklin & Bagheri (2020), Pauwels (2020) show that advertising support reduces time needed to reach a given number of customer reviews after a product introduction.

The data for this study are collected from Walmart.com US website by sorting the customers reviews of product by date and calculating the number of days between the tenth customer review and the date of product introduction to online sales.

The 44 products in the study were introduced to online sales between January 2017 and May 2020.

The advertising support for a given product is estimated by searching for existence of any online ads of exactly the same product. This study excludes general brand ads or ads for similar but not exactly the same products. The disadvantage of this approach is that we know neither the duration nor the level of advertising support.

Our classification is binary: the products with extensive number of ads are grouped as advertising supported (treatment) and the products with none or limited ads are grouped as without advertising support (control). This research compares treatment vs. a very strong control group, a sample of products that reached customer acceptance without advertising support. The control group excludes failed products that never reached ten customer reviews. Therefore, the estimate of the treatment results is conservative.

This study analyses 44 similar products consisting of two groups. 27 products are treatment with advertising support and 17 are control without advertising support. To control for confounding factors, this research compares the average selling price and the star rating of the two groups. This study has not been able to obtain the total annual sales of each brand in the study since not all companies are publicly traded and privately held companies do not disclose their financial information. Nevertheless, a spot review of the treatment and control groups does not reveal any drastic difference between two groups in annual revenues of those companies that disclose them.

There are other challenges to this methodology, seasonality and substitution similarity between the treatment and control groups.

Seasonality means that the products are starting at different times of the year and if customer reviews are more likely at some seasons, it can in theory impact the conclusions of this research. Despite that this study cannot select products with similar starting dates due to its sample size, we do not believe seasonality is a major factor. The average number of days needed to reach ten customer reviews is relatively long, more than a quarter. On the other hand, the seasonal effects, e.g. a holiday season or Cyber—Monday are relatively short, a couple weeks or less than a month. Therefore sellers are very unlikely to select a specific time of the year to reach ten customer reviews faster.

Substitution similarity means that the treatment and control products, due to the sample size, are not true perfect substitutes with all features being identical from the customer perspective. Nevertheless, the conclusions of this study are not likely to be impacted since the products in both treatment and control groups are similar electronics accessories. Per Arens & Hamilton (2016) true perfect substitutes are practically never the case in marketing research.

4. Results

Table 1 below compares the averages of Advertised supported vs. control group with p-value calculated by a two-tailed unpaired t-test with unequal (heteroscedastic) variance.

Table 01. Advertised (Treatment) vs. Control (Non-advertised) Group

Variable	Advertised (Treatment)	Control	p-value
N observations	27	17	-
Average selling price	$37.99	$36.59	0.9072
Average star rating	3.91	4.02	0.5260
Average days to reach 10 reviews	157.85	230.59	<0.0001

Source: Own elaboration, 2021

As we can conclude from Table 1 above, the products in advertised (i.e., treatment) and control groups are similar by their average selling price and have no statistically significant difference in their average star rating. Therefore the difference between the treatment and control in the average number of days to reach ten customer reviews can be explained neither by the difference in the selling prices nor by their star rating that is a proxy of the product quality as perceived by customers.

On the other hand, the control group of products without advertising support observed an increase in the number of days to reach ten customer reviews by 46% vs. the advertising-supported treatment group and the difference is statistically very significant. Therefore, we can conclude that a significant 46% increase in the number of days to reach ten consumer reviews in control group is due to the lack of extensive advertising support. This result has a simple intuitive explanation. Customers need help on their journey to discover recently introduced products, purchase these products and post reviews about their experience. Advertising informs the customers that a product is available, whereas a product without advertising support has to rely on word-of-the-mouth and therefore has to wait on average 46% longer until the customers discover it, purchase, and post their reviews.

5. Discussion and conclusions

This research provides a simple methodology for online businesses to estimate the time needed to reach a specific number of customer reviews and to estimate the impact of advertising expenditures on this time. By analyzing publicly available data at a major online e-commerce platform, this study concludes that the lack of advertising support is likely to increase the time to reach ten customer reviews by 46%. Since time has a money value depending on each specific business cost of capital, the businesses can estimate the benefits of advertising expenditures based on their investment in developing a specific product.

Let us note that advertising has other benefits and impacts various performance metrics in addition to the number of customer reviews. Nevertheless, this research provides strong evidence that businesses saving the advertising costs can expect on average 46% longer time for their product to accumulate ten customer reviews and to become accepted by the customers. Estimating their advertising costs the businesses can make a decision whether it is worth to pay for the advertising support and reach customer acceptance of their online product faster, or whether they can save on advertising costs and wait about 46% longer on average to reach customer acceptance of their product.

6. Disclaimer, appendix and acknowledgments

The author is in no way affiliated with Walmart, Jet or any of their subsidiaries or partners including any marketplace sellers. This study included only post-purchase reviews as collected by the author on the Walmart. com publicly available website. It included only verified purchase reviews of products sold both by Walmart and by Marketplace sellers. This study excluded reviews identified as Walmart Associates or reviews not identified as verified purchases.

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