The role of big data in understanding the effects of price promotion in the luxury fashion industry

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Abstract
The luxury fashion sector, recognized for its high sales volume, denotes products that convey prestige to their owners, irrespective of their functional utility, accentuating self-worth and societal esteem. While the influence of price as a determinant factor in luxury products has historically been overlooked in research, based on the belief of its insignificance to consumers, the role of price promotions remains even more under-explored, particularly in the context of luxury fashion. Some fashion brands adopt the policy of no promotion, others use promotional leverage but with little knowledge of its real opportunities and functions in the specific field.
This research seeks to bridge this gap by examining the impact of price promotions within the luxury fashion realm. Utilizing big data—highlighted as a cornerstone for innovative analyses—sourced from a company belonging to this sector, this study evaluates consumer purchase histories. Through an enhanced Sequential Pattern Analysis (SPA) method, the research focuses on discerning purchase patterns related to price promotions. Preliminary findings suggest that there is a segment of consumer who are significantly motivated by pricing offers and more price-sensitive. Other segments, however, are more interested in the product and do not pay attention to promotional pricing.

Keyword: price, price promotion, fashion, luxury, big data

1 Introduction

Over time, various theories have been employed to conceptualize luxury and its consumption. The most utilized ones are centered on status, values, and social comparison (Ko et. al, 2019). Luxury goods are known for their high quality, aesthetics, exclusivity, and premium pricing, and are considered status symbols that bestow prestige on their owners purely through their use or display, regardless of their functional utility (Jin & Cedrola, 2017). They provide a sense of self-respect and appreciation by society (Heine & Phan 2011; Mattila, 1999).

The price variable in the luxury sector has always received little interest from researchers due to the consensus that price should not be shown as a defining factor of the product and of little significance to the consumer (Kapferer & Bastien, 2009,

2012). Even less has been studied in terms of price promotion in the luxury sector, with few and fragmented analyses only found in other sectors far from fashion (Zhi & Ha, 2023, Jang & Moutinho, 2019).

The aim of this preliminary research is to further the theoretical understanding of the utilization of price promotion as a strategic instrument in the luxury fashion industry and its consequent effects on both the consumer and the firm. To do this, an empirical analysis will be carried out using big data generated by a company operating in the luxury fashion industry. The purchase history of users is analyzed to find their purchase patterns related to price promotion through sequential pattern analysis (SPA) using consecutive subsequences that are a subset of all subsequences. This approach, compared to a typical SPA approach, achieved higher precision (Lu, 2014). The approach employed in this study facilitates an understanding of the impact of using price promotions as a marketing tool in the luxury fashion sector.

2 Literature review

The price variable is one of the levers of the company's marketing mix and as such must be managed appropriately in the definition of the marketing strategy. In the luxury literature, however, the price factor has been little considered and deepened. This because the price factor is part of the very definition of luxury (Kapferer, 2014). It is considered as something that should not be explained in a rational way as it refers to intangible elements such as history, legend, prestige of the brand (Kapferer, Klippert, & Leproux, 2014; Jin & Cedrola,2017). From a practitioner's point of view, the goal of the manager is to make his customers insensitive to the price factor (Kapferer, 2012).

Among the options in strategic price management, there are price promotions, commonly described in many reference materials as actions including offers, price cuts, vouchers, rewards schemes, rebates, competitions, product trials, and distinctive showcases. These strategies aim to motivate the target consumers to respond in a specific manner, typically by diminishing the perceived worth of the featured product to accomplish immediate objectives. (Broderick & Pickton, 2001). Furthermore, price promotion plays a pivotal role in marketing strategies, encompassing a variety of incentive measures, often with a short-term focus, designed to motivate consumers to buy certain products or services at a faster or more consistent rate (Kotler, 2003), or to sell out old collections.

In general Keller (2013) say that "luxury brands use discounts and any other form of price markdowns very selectively". Previous research has investigated the impact of price promotion using different lens. His impact on behavioral intention, specifically in relation to brand equity and brand loyalty, has found that it has a negative effect on high-priced brands. (Swani and Yoo, 2010). According to previous research, products that frequently offer price promotions are often believed to be of lower quality than products that are rarely promoted. (Fok et al., 2006). The price factor is one of the

main drivers that guide the luxury consumer's in-store purchasing behavior, while greater price awareness is given in online purchases (Liu, Burns, Hou, 2013).

The existing literature on the luxury sector has given little attention to the pricing variable, especially in terms of price promotion. This gap in knowledge is particularly true for the luxury fashion industry, which has never been empirically studied. Therefore, this research aims to fill this gap by expanding the theory of price promotion as a marketing mix lever in the luxury fashion sector and how utilize them properly.

3 Methodology

This study collected and analyzed big data on transactions made by customers of a luxury fashion company over a three-year period (2020-22) in 18 retail stores of the company to conduct an empirical analysis. At the end of the data collection process, the data cleaning activity was carried out. This is a gradual process that passes through several phases like data analysis, definition, data transformation and data mapping rules, transformation, verification, and backflow data analysis. (Christen 2012). At the end of the data collection process, a sample of approximately 25,000 transactions carried out at the points of sales of the brand's stores were obtained. The variables contained in the dataset are customer ID, transaction ID, transaction date, purchased product, promotion (yes, no), and purchase channel.

By analyzing the variables of customer ID, transaction ID, transaction date and promotion (yes, no), it is possible to gain insight into how in-store promotions impact customer purchasing patterns. This includes determining if a promotion leads to the acquisition of new customers, particularly whether the customer's initial purchase is an item on promotion or not. It also allows for the analysis of repurchases of promotions throughout the customer's lifetime.

The dataset was analyzed to understand the purchase history of a user, which is the series of transactions ordered by the transaction time. In this case, the purchase history is the promo sequence, for example "Yes, No, No, Yes". This means that the first purchase is a deal in a promo product, the second and third ones are both in no promo, and the last one is in promo. By given a set of promo sequences, we can find the purchase patterns related to the user's behavior to understand the impact of promos on the first and repeated purchases.

To perform this analysis, sequential pattern analysis (SPA) of purchases made in promo and non-promo was used, using a consecutive subsequence approach. As highlighted by Lu (2014), this approach is better compared to typical SPA as it allows for precise prediction of the next purchase of a consumer based on their purchase history. The analysis involves analyzing all eligible subsequences from users to create a conditional probability model. This model calculates the conditional probability of the next purchase based on a given sequence, allowing for an understanding of the

probability of a specific category (promo or no-promo) being in the next purchase based on purchase history.

4 Preliminary findings

Upon the preliminary analysis of the dataset, distinct patterns emerged in relation to consumer purchasing behaviors in the context of promotional and non-promotional luxury fashion products. Consumers who initiated their purchase journey with a non-promotional product exhibited a strong inclination towards maintaining this pattern. The probability of these consumers transitioning to making a promotional purchase on their subsequent transaction was observed to be remarkably low at 13%. Notably, these customers displayed a consistent pattern of loyalty towards full-priced items. This behavior underscores a segment of luxury fashion consumers who are seemingly less influenced by promotional offers and might prioritize other elements such as brand value, exclusivity, or product quality over pricing incentives.

In stark contrast, consumers who were introduced to the brand through a promotional offer demonstrated a substantial likelihood of perpetuating this behavior. Specifically, a striking 67% of these consumers persisted in purchasing promotional items in their subsequent transactions. This suggests a segment of consumers who are significantly motivated by pricing strategies and offers. Their purchase behavior indicates that their loyalty might be more price-sensitive, and they are adept at seeking out promotional offers within the luxury fashion sector.

The discerned patterns offer insights into potentially distinct consumer segments within the luxury fashion market. One segment appears to be brand or product-centric, showing less susceptibility to pricing strategies. In contrast, the other segment seems to be more price-sensitive, possibly viewing luxury fashion as an opportunity to acquire premium items at more accessible price points when promotions are available.

5 Conclusion, implication and limitation

Although the pricing variable and its related promotions have received little attention in the luxury literature, the preliminary results of this empirical analysis provide new insights into the role of price promotions in the luxury fashion industry.

Regarding practical contributions, this preliminary analysis offers some suggestions for the marketing manager. First, it is possible to notice how promotions attract specific customer segments that would not normally purchase luxury products, and even lead them to repurchase over time. Second, attention should be paid to communicating promotions to the right consumers, as seen in customer results that normally purchase luxury products at full price and regularly do not seem to be attracted to promotions, and its communication could undermine their perception of the brand, as highlighted by Swani and Yoo (2010). Thanks to the use of big data, it is

now possible to understand the type of consumer and personalize communication accordingly.

Regarding the theoretical implications, these preliminary results open up further questions that should be explored in more detail to better understand the use of promotions in the luxury fashion sector. First, we should understand the profile of luxury consumers who are most attracted to promotions. The work of Brun and Castelli (2013) could be a starting point for expanding the profiles of luxury consumers, focusing on the fashion sector. On the other hand, focusing on the companies themselves, it may be interesting to understand the benefits of using these promotions, such as increasing sales in the short term, attracting new customers, creating new entry points to the brand, or managing inventory and logistics, as Kotler (2003) writes. It is important to understand how to balance the use of promotions as a marketing mix tool so as not to damage brand equity. Finally, it may be useful to explore the best ways to communicate these promotions. It has been shown that luxury consumers who shop online are more price-sensitive (Liu, Burns, Hou, 2013), but there may be other channels, such as factory outlets.

This preliminary study has certain limitations that must be acknowledged. Firstly, the research was conducted only on one company, making it difficult to generalize the results to the entire luxury fashion industry. Additionally, the sample period was limited to three years. Secondly, the exclusive use of Sequential Pattern Analysis (SPA) with the consecutive subsequence approach may have overlooked other relevant patterns or data points. While SPA provides precise insights into purchase sequences, it may not capture other influential factors that could affect consumer behavior.

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