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Learning from customer interaction: How merchants create price-level propositions for experience goods in hybrid market environments

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ABSTRACT

For hybrid merchants, who sell goods simultaneously through digital media and conventional channels, creating a price proposition is a major and controversial decision. We model the interaction between hybrid merchants and their customers within the context of an experience goods market; and we study how merchants and customers both learn from this interaction to make optimum decisions. The equilibrium solution of the proposed game shows that experience goods' loyal customers tend to switch channels, make repeat purchases online, and avoid learning alternative value propositions. And the optimum strategy for hybrid merchants involves higher prices that rely on solid branding and knowledge of the clientele. The findings also yield important managerial implications.

1. Introduction

With the rise of the internet and a plethora of new social media, the way in which customers gather information about goods and do their shopping is changing forever. The new media provide customers with a huge range of relevant value propositions at their fingertips. They empower customers to learn from the experience of others, benefit from customised recommendations, and quickly find and compare value propositions with ease. Precisely, the capabilities offered to customers and merchants by these new media, in terms of visibility, proactivity, real-time, ubiquity and social networking (Hennig-Thurau et al., 2010), are in sync with a new marketing logic that proposes more advanced forms of customer–merchant interaction (Rodríguez-Ardura, Martínez-López, and Luna, 2010) – and defends that value is co-created with customers (Vargo & Lusch, 2004). In this new context, the customer is conceived as a co-creator of value, which entails that the knowledge yielded by the customer–merchant interaction is used to create price propositions (Ingenbleek, 2014).

On the basis of neoclassical economics, it could be argued that this new context has the potential effect of reducing price levels (Sandulli & López-Sánchez, 2014). Online customers would make purchase decisions based on the information of goods' objective attributes, the user reviews, recommendations, and the product and merchant comparisons that online shopping tools efficiently process and offer. By considering the asymmetries of information between customers and merchants, along with the information search costs for customers (Stigler, 1961), it could be presumed that the vast number of online customers will use shopping tools to identify goods at the lowest price that best suits their preferences (Bakos, 1997). By contrast, the brand would lose its relevance as a signal of useful product information (Ward & Lee, 2000). All of this would lead to a bleaker situation for merchants, insofar as it would provoke fierce price-based competition and, ultimately, a reduction in prices.

Because of the crucial role that online searches play in this theoretical reasoning, studies into online prices have largely referred to goods, so-called search goods, whose most important qualities can be properly assessed by using searches, user reviews, recommendations and comparisons via online shopping tools. The studies by Strader and Shaw (1999) for sports trading cards, Brynjolfsson and Smith (2000) for books and CDs, Brown and Goolsbee (2002) for life insurance, Clemons, Hann, and Hitt (2002) and Orlov (2011) into airline tickets, and Lee and Gosain (2002) for the CD market are just a few examples. This interest in search goods sharply contrasts with the scarcity of research into online price levels for experience goods, like clothes, shoes, accessories, or perishable food. In the case of experience goods, an economic search-cost reasoning might be futile since customers may find it hard to evaluate the goods using the information presented online, so they might need to physically inspect the experience goods or judge their suitability based on previous experience. In fact, and to the best of our knowledge, only a handful of studies into online price levels have considered experience goods (Kauffman, Lee, Lee, & Yoo, 2009; Lal & Sarvary, 1999; Pan, Shankar, and Ratchford, 2002; Zettelmeyer, Morton, &

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Silva-Risso, 2006) and, among them, only the analysis of Lal and Sarvary (1999) delved into the particular features of experience goods to explain their price levels online.

But even within search goods markets, the economic search-cost perspective faces difficulties to account for some shopping situations where online customers pay price premiums (documented by Bailey, 1998; Clay, Krishnan, Wolff, & Fernandes, 2002; Stylianou, Kumar, & Robbins, 2005; Xing, Tang, & Yang, 2004; among others). Perhaps it is because they are not aware of, or do not have to hand, advanced online shopping tools (Ratchford, Pan, & Shankar, 2003; Ward & Lee, 2000), or because they show themselves to be convenience-oriented and do not find the search cost effective (Ratchford et al., 2003), or they prefer certain brands or merchants they are familiar with (Baye & Morgan, 2009; Smith, 2002; Ward & Lee, 2000), many online customers resort to trusted brand names as heuristics to guide their purchase decisions (Deck & Wilson, 2006; Grover, Lim, & Ayyagari, 2006; Kim, Xu, and Gupta, 2012; Rezabakhsh, Bornemann, Hansen, & Schrader, 2006). For their part, various brand strategies and CRM programmes have been shown to help online-enabled merchants avoid intense price competition situations (Baye, Morgan, & Scholten, 2004; Deck & Wilson, 2006; Hernandez, 2002; Oh & Lucas, 2006; Sotgiu & Ancarani, 2005). Not surprisingly, it has been advocated that apart from search-costs for informed customers, elements related to the customer's purchase decision process and the merchant's marketing strategy need to be examined as potential price drivers (Degeratu, Rangaswamy, and Wu, 2000; Lynch & Ariely, 2000; Sotgiu & Ancarani, 2005; Xu, Chen, & Whinston, 2010).

To complement the insights brought by this previous literature, we deal with the topic of price levels in hybrid environments within the far less-studied context of experience goods markets, and we explore the related forces affecting customers and merchants that can shape price levels. Similarly to Lal and Sarvary (1999), we address this issue through a game theory model where customers seek to gain the greatest utility while hybrid merchants compete to make the highest profits. But we employ a different approach from that of Lal and Sarvary's modelling, since our model is dynamic. It considers a learning process within which customers make successive purchase choices, and a sequential interaction between customers and hybrid merchants. In addition, it includes the mutual influence between customers' behaviour and decisions and hybrid merchants' price propositions. The game incorporates aspects such as the customer's previous learning experience with the merchant's value proposition, the convenience of the marketing channel for the customer, and the merchant's ability to provide information about experience attributes.

After this introductory section, the rest of the article is structured as follows: we discuss the theoretical background and empirical findings prompting our analysis; together with this, we model a hybrid distribution environment where experience goods are marketed; and we present the solution derived from the model, and the conditions under which this outcome occurs. We finish with a discussion of the managerial implications of the equilibrium analysis, and draw our conclusions.

2. The experience goods context

Experience goods (such as shoes, clothes, perishable food, furniture) have become more prolific in the gold standard lists that show items being most demanded online (Nielsen, 2010). Before the first purchase decision, consumers need to physically handle and test these types of goods in person (Nelson, 1974). Digital marketing in this sector is far from exhaustive in scientific literature, especially in studies of price levels. During the preparation of this paper, we only found four studies that dealt with this topic (Kauffman et al., 2009; Lal & Sarvary, 1999; Pan, Shankar, et al., 2002; Zettelmeyer et al., 2006): and only Lal and Sarvary (1999) looked at how price levels are influenced by certain characteristics of experience goods digital marketing.

The lack of interest in experience goods is possibly due to a fairly widespread belief that these types of goods have slim prospects of being sold successfully online. This conviction originated from often-disappointing experience product sales figures in the early years of digital marketing, compared with search-goods' figures (e.g. books, electronic equipment, computer hardware, computer software). And it has been reinforced by academic debate over whether goods' search-characteristics (i.e. the ease with which the goods can be objectively evaluated based on the information offered by the merchant) help to facilitate their sale online. This debate was raised by Alba et al. (1997) and Peterson, Balasubramanian, and Bronnenberg (1997) in their respective theoretical papers, and was sustained by a number of empirical studies which defended the superior capacity of search-goods in digital marketing (Brown, Pope, & Voges, 2003; Fenech & O'Cass, 2001; among others). Nevertheless, serious doubt could be cast upon the consideration that the search-characteristics of the goods are, by themselves, a critical success factor online. And not only because most empirical studies on the topic were limited in scope – they focused on homogeneous consumer groups in very specific areas (e.g. Girard, Silverblatt, & Korgaonkar, 2002; Korgaonkar, Silverblatt, & Girard, 2006; Phau & Poon, 2000; Vijayasarathy, 2002), or were based on small or convenience samples (e.g. Chiang & Dholakia, 2003). From the merchant's perspective, and beyond the specific aspects which could be considered in the digital marketing of certain typologies of goods and services, what turns out to be decisive is the definition of an adequate digital marketing strategy (Poon & Joseph, 2000, 2001), one that is effectively oriented to the customer (Boulding, Staelin, Ehret, & Johnston, 2005; Payne & Frow, 2005). In fact, the business practice itself (bearing in mind successful cases like Lands' End, Net-a-Porter, Privalia, Special Travel, Tiscover, Zappos, etc.) highlights the possibilities offered by the internet and digital media in experience goods' marketing, especially when the customer has previously learnt the particular attributes of these goods. Yet the customer first facing a purchase might resort to physical channels in order to learn the value proposition. The knowledge acquired about the goods lets him/her become familiar with it; and this ultimately favours his/her intention to repeat the same purchase experience, but this time online (Dinlersoz & Pereira, 2007; Girard et al., 2002).

3. The model

We analyse hybrid merchants' decisions about price levels in experience goods markets by taking a plausible scenario where merchants have a virtual channel and a physical channel. The suitability of this particular distribution structure appears to be evident in experience goods' digital marketing (Dinlersoz & Pereira, 2007). Customers might visit the physical premises to learn and try the goods for their first purchase decisions and then use their accumulated knowledge about the product the next time they shop – perhaps online. This hybrid distribution structure has not only become increasingly frequent (Cho & Lee, 2006; Coelho & Easingwood, 2008; Yoo & Lee, 2011), it has also proven to be optimum (Bernstein, Song, & Zheng, 2008; Biyalogorsky & Naik, 2003; Dholakia, Zhao, & Dholakia, 2005; Kurata, Yao, & Liu, 2007). Although the evidence is scarce that mainly relates to the prices of search-goods, so far it points towards the idea that prices are higher within these particular hybrid environments. For instance, greater prices for hybrid merchants with physical shops have been noted by: Li, Tang, Huang, & Song, 2009, and Tang and Xing (2001) in the DVD market; Pan, Ratchford, and Shankar (2002) for CDs, DVDs,

computers, PDAs and consumer electronics; Pan, Shankar, et al. (2002) for apparel, gifts and flowers, health and beauty, home and garden, sports equipment, computer hardware, consumer electronics and office supplies; Cao and Gruca (2003) for the printer market; Ancarani and Shankar (2004) for books and CDs sold in Italy; Venkatesan, Mehta, and Bapna (2006) for books, camcorders, DVDs, DVD players, PDAs, printers, scanners and video games; and Kauffman et al. (2009) considered up to 34 distinct goods categories (ranging from furniture to consumer electronics). More recently, Jeffers and Nault (2011) have shown through a game theory model that a hybrid distribution structure provides a way, for merchants of search goods, to raise prices.

In order to explore the particular forces shaping price levels within this scenario, we assume that the experience goods can be seen, touched or tried, that the purchase is not a routine decision, that the goods are heterogeneous, and they are adaptable. One example might be a pair of shoes or a pair of trousers that the customer wants tailored to his or her own personal likes and style (Dinlersoz & Pereira, 2007). In order to simplify our analysis, and following Lal and Sarvary's formulation (1999), we introduce the assumption that goods at hybrid merchants are substitutes and differentiated, i.e. the brands and items marketed are different from one merchant to the next. Essentially, the model captures an environment in which hybrid merchants of experience goods adopt an exclusive distribution strategy (as demonstrated by Abercrombie & Fitch, Ikea, Land's End, Zara, and many other hybrid merchants). Naturally, other frameworks might produce a different outcome from our results. But as Lal and Sarvary observed, these presumptions let us present a concrete and valid scenario in which hybrid merchant's pricing can be higher.

3.1. Driving forces that shape price levels

A number of aspects can shape experience goods' prices in the online-enabled retailing scenario that has been defined. First, what has been unearthed is the special effort required in these environments to adequately coordinate the distinct internal channels and to ensure consistent pricing strategies across all of them (Kauffman et al., 2009; Liu, Gupta, & Zhang, 2006). Without this, internal competition and conflict between channels could arise. This ultimately hurts the hybrid merchant's performance (Coelho & Easingwood, 2008; Webb & Hogan, 2002). So the deployment of the same pricing strategy in diverse channels of the hybrid merchant seems to be probable and adequate, especially in those goods markets with high digital media penetration indexes – where few business opportunities are presented to benefit from the digital divide – by way of a costly high-quality goods' assortment in the conventional channels and low-priced and low-quality-recognition goods in the online channel (Riggins, 2004). And, as Zettelmeyer (2000) and Kauffman et al. (2009) pointed out, when the online shopping market is prevalent, hybrid merchants have no special reason to define unique price propositions for each of the two channels. Online price proposition deployment (similar to those used in traditional environments), prevents conflict between hybrid merchants and their competitors – with the exception of those competitors which they have been differentiating from within traditional channels. Based on this reasoning, and taking into account further evidence of consistent pricing across channels among hybrid merchants with physical shops (e.g. Ancarani & Shankar, 2004; Ashton, 2002; Kauffman et al., 2009; Pan, Shankar, et al., 2002), we assume that hybrid merchants establish their respective value propositions at the same price point across all of their channels. This maintains integrity and prevents conflict across all of their channels of distribution.

Second, we take into consideration the potential impact on experience goods' prices due to the customer's knowledge of the value proposition (Pan, Shankar, et al., 2002; Venkatesan et al., 2006) – assembled, over time, through the merchant's effective brand strategies and CRM. Here the goods or brand awareness, and customer's positive learning experience with the hybrid merchant in the physical channel, could contribute to increase the customers' aversion to changing merchants (Cao & Gruca, 2003; Huang, Lurie, & Mitra, 2009), and could soften the customers' sensitivity to the online price (Dinlersoz & Pereira, 2007; Shankar, Smith, & Rangaswamy, 2003).

To analyse the impact of these elements, and similarly to Lal and Sarvary (1999), we assume that hybrid merchants are on a level playing field with regard to their brand's reputation, and the impact of their brand strategies and CRM. This homogeneity implies that each merchant has comparable numbers in terms of loyal customers. Yet it does not mean that hybrid merchants use the same brand strategy or the same CRM programme. What we presume is that merchants are as successful as each other in differentiating their respective value propositions, and have proven profitability and solid connections with their loyal customer base.

Furthermore, on the basis of literature in the field, we do not view customer loyalty to be a repeat purchase at the same hybrid merchant – an action which could simply have happened due to spurious factors. Instead, we define loyalty to be a customer's positive attitude and preference for the value proposition offered by a hybrid merchant (Mittal & Kamakura, 2001; Rodríguez-Ardura et al., 2010). And we also consider it's possible that a customer who is loyal to a specific hybrid merchant could buy from a competitor's shop. However this does not necessarily reflect a "change of mind" in their preferences towards their preferred merchant.

What we presume is: the customer's purchase decision will eventually end up purchasing the goods – whether from their valued hybrid merchant j or from a competitor. We use $e \in (0, 1)$ for perceived expectancy of obtaining a greater utility with a merchant different from merchant j. Because of the customers' loyalty to hybrid merchant j and the implied switching and learning costs associated with changing providers (Lam, Shankar, Erramilli, & Murthy, 2004), we assume that $e < 0.5$. This assumption seems even more reasonable in the hybrid scenario considered, due to the higher level of aversion shown by online customers to change providers if they have previously learnt the merchant's value proposition in the physical channel (Cao & Gruca, 2003; Danaher, Wilson, & Davis, 2003; Fernández-Sabiote & Román, 2012).

The ability of the hybrid merchant to offer shopping convenience may also be an important price level driver (Sotgiu & Ancarani, 2005; Swaminathan, Lepkowska-White, & Rao, 1999; Venkatesan et al., 2006). In fact, the perception of convenience has been identified as a main driving factor for a customer's decision to purchase online. And it isn't just the expected reduction in time and effort expended by not having to travel to physical shops, it's also the online advantages of flexible shopping hours, no more waiting in a checkout line, and a complete avoidance of crowds.

In comparison with pure-online merchants, the convenience levels of shopping that hybrid merchants with physical shops provide can be even greater. This is because of the choices they make available when it comes to changing the purchase channel – e.g. options for ordering online but returning the goods to a local physical shop, using loyalty cards and benefits from merchant's promotions in any channel. Moreover, the ability to have online customers learn the non-search characteristics of the value proposition from previous purchase experiences in the physical channel (Venkatesan et al., 2006; Yang, Lu, and Chau, 2013) could justify higher prices.

Therefore, we consider that customers have a cost of inconvenience $d_1 > 0$ that is linked to the time and effort it takes to go from their home to the hybrid merchant's physical shop, and a cost $d_2 > 0$ for when they go from one physical shop to the next. The second cost (d_2) is for situations where a customer from segment j chooses to shop at merchant i's physical shop but they are

unfamiliar with the shop's layout. Once there, they do not buy anything but, instead, then go to merchant j who they are loyal to. We are also assuming that d_1 does not depend on the merchant's physical shop where the customer visits to buy something. And similar to Lal and Sarvary (1999), we suppose that the cost of travel between physical shops is less than the cost of travel from home to the physical shop ($d_2 < d_1$). This seems a reasonable assumption in communities with hubs of commercial activity, like a shopping centre or a designated group of streets. Like Balasubramanian (1998), we give a broad interpretation of the cost of travel: apart from the actual cost of the trip, we also include the opportunistic cost of time and the cost of inconvenience that is implied.

In order that our model captures the defined scenario, we consider a unique and symmetric market, in perfect equilibrium, and we study its dynamics. The game starts from a situation of unique equilibrium, in which m merchants set unit prices to v at unit costs t_1. It evolves in three stages during which customers make two repeat purchases. In step one, merchants only distribute goods through the physical channel. In steps two and three, hybrid merchants market through the physical channel and via digital media in equal amounts. We assume that merchants return a positive profit per unit ($v > t_1$).

This modelling entails some additional differences with respect to Lal and Sarvary's model. Rather than considering two separate and static situations, one for physical channels and another for a hybrid distribution structure, we conceive of a dynamic model that integrates two separate situations. In an attempt to reflect a scenario that is as realistic as possible, we relax Lal and Sarvary's duopoly assumption and consider m merchants who compete in the market. Bearing in mind the interaction between customers and hybrid merchants that takes place in real markets, customers' strategies and hybrid merchants' strategies are not independent in our model: customers learn from hybrid merchants' price propositions and this influences their decisions and behaviour; conversely, hybrid merchants learn from customers' purchase decisions and this impacts on merchants' decisions about price levels.

3.2. Stages of the game

In step one (see Fig. 1), the customers from segment j have to decide to (1) repeat a purchase in their merchant j's physical channel, or (2) buy at a competitor's physical shop. In (1), the customers find that the goods are suitable, and they get a reservation utility a. In (2), where the customers shop with a competitor, we model the goods to be more suitable $s > 0$ with the probability of $e < 0.5$, so they get $(a + s)$ utility. However, a probability of $(1 - e)$ exists that the goods might not be suitable, so the utility $(a - s)$ will be attained. As long as the customers decide not to learn and try out a competitor, the utility customers receive is equal to the reservation price, minus the price of the goods, and minus the cost of inconvenience of going to the shop ($A_i = a - v - d_1$). But if the customers opt to learn (i.e. they explore and attempt to buy from a different merchant), then the utility is as expected in the "no learn" case, minus the probability that the goods are not suitable $(1 - e)$, multiplied by s or d_2 (s or d_2 depends on if the reservation utility's adjustment s is greater than the cost of going to the usual merchant), plus the probability that the goods are more suitable (e) multiplied by the fit value s.

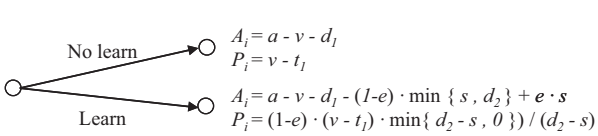

Fig. 1. First stage of the game.

When the customers purchase a unit of goods from a merchant they know and are loyal to, the merchant's profit function (P_i) is given by v minus unitary production cost (t_1). When the customers decide to "learn", then merchant j's profit expectations depend on the probability that the customers learn the alternative merchant's goods are not as suitable $(1 - e)$, and also on the difference between the cost of visiting the usual physical shop d_2 and the fit value.

In the second stage of the game, merchants adopt the online channel. They integrate it into a hybrid distribution structure. We consider, without loss of generality, that a hybrid merchant j makes a decision about their price proposition which allows them to optimize their best response function (Fudenberg & Tirole, 1991, p. 29), whereas the other merchants continue selling their goods at the initial equilibrium price v. For clarity, we assume the hybrid merchant j can raise or lower prices by a fixed h (being $h > 0$), or they can keep the initial price. We also look at the online channel's unit cost of distribution t_2 (cost of shipping and handling included), and we assume that positive profits are attained through this channel ($v > t_2$).

In the third stage of the game, customer decision options are similar to the options in the first stage. However, we now suppose that customers aim to minimize the costs of inconvenience when they decide to buy from the hybrid merchant whose value proposition they know. Provided these costs are specific to the shopping trip, and independent of the goods purchased (Bell, Ho, & Tang, 1998; Messinger & Narasimhan, 1997), and that – in line with earlier ruminations on digital marketing of experience goods – prior learning process and experience with the goods and the value proposition supplies customers with useful information in repeated online purchasing. Consequently customers choose to save d_1 (Venkatesan et al., 2006), and will shop at the merchant's virtual shop. If customers from segment j decide to learn and thus attempt to buy from another hybrid merchant, they will, by necessity, go to the competitor's physical shop as they have to physically examine and try out the goods (as in the earlier example of a pair of shoes or trousers) to check whether or not they fit. If customers learn that the goods are not suitable, we presume that they opt not to buy at the competitor's physical shop and they end up shopping online at their usual merchant – which means they save d_2.

The three-stage game can be represented in the extensive form (Fudenberg & Tirole, 1991, pp. 67–106) shown in Fig. 2. Play begins at a unique initial node, flows along different paths, and ends at terminal nodes where payoffs (utility and profit) are assigned. Twelve possible outcomes are named using a tag with three digits ($x_1.x_2.x_3$). Digits x_1 and x_3 can either be 1 ("no learn"), or 2 ("learn"), depending on the segment j customer's decision that is made at the "only physical shops" situation (x_1), and in the hybrid scenario (x_3). Digit x_2 represents merchant j's decision in stage two: 1 ("raise price"); 2 ("maintain price"); or 3 ("lower price").

4. Results

We use the backward induction method (von Neumann & Morgenstern, 2007) to solve the three-stage game sequentially. This method determines the optimal path – from the end of the three-stage game to the start, and a sub-game perfect equilibrium is calculated at each stage. The solution is a Nash equilibrium for every sub-game in the original game.

Proposition. There is a unique equilibrium when the following conditions are satisfied:

(Condition 1) $h < s$

(Condition 2) $d_2 < s < d_1$

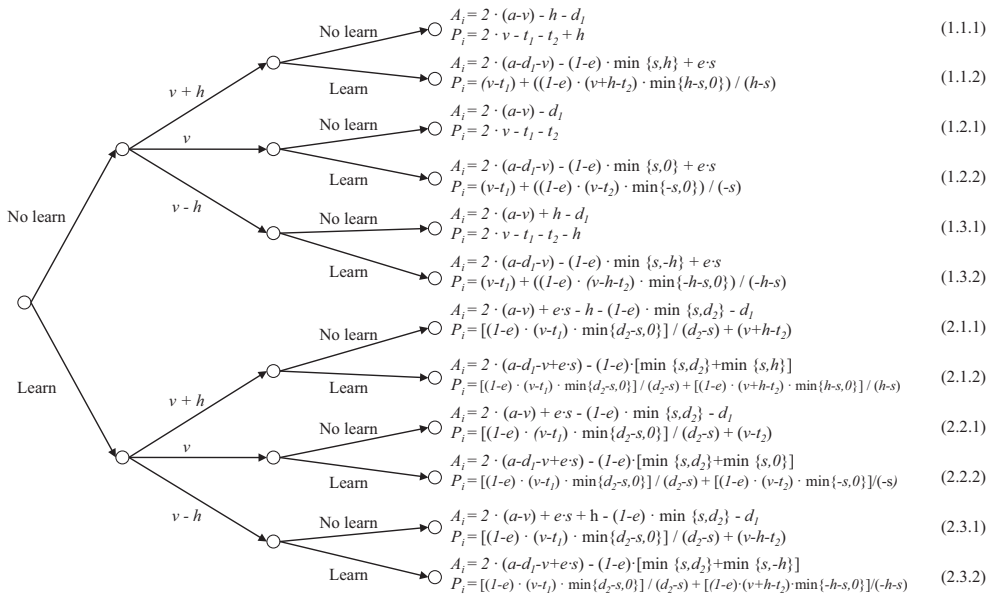

Fig. 2. The three-stage model.

(Condition 3) $\dfrac{d_1}{e} - s > h$

In the strategic-path included in the equilibrium, customers do not explore and learn hybrid merchant's competitors' value propositions (stage one); hybrid merchant raises prices (stage two); and customers do not explore/learn merchant's competitors' value propositions (stage three).

Proof. (Sketch[1]) Taking into account the characterisation of the possible solutions of the game with respect to the parameters of the model (see Appendix A), and the assumption that price adjustments are of low magnitude (Brynjolfsson & Smith, 2000) in the hybrid environment – so they are of a value lower than s (Condition 1) – we arrive at:

$$h^* = \frac{h}{e} - \frac{(1-e)}{e} \cdot \min\{s,h\} = \frac{h}{e} - \frac{(1-e) \cdot h}{e} = h$$

Taking into consideration the initial presumptions that $d_1 > d_2$ and that $e < 0.5$ along with Conditions 1, and 2, we find that Condition 3 is normally satisfied. Additionally, because of Condition 3 and the fact that $h^* = h$, we see that there are only two possible solutions, and they are given by the strategic paths 1.1.1 and 2.1.1. Lastly, the following inequality is accomplished from Condition 2 and given that $e < 0.5$:

$$e \cdot s - (1-e) \cdot d_2 < 0$$

Thus, 1.1.1 describes the unique solution to the game. □

4.1. Discussion

The unique equilibrium from the interaction of hybrid merchants with customers (described in 1.1.1) takes place when the relationships between price-level adjustment, reservation utility's adjustment, costs of inconvenience to shop offline, and utility expected from an unknown hybrid merchant satisfy Conditions 1–3. From Condition 1, we see adjustments in pricing, which can have small values (Brynjolfsson & Smith, 2000), are lower than the fit value. In other words, the customer can clearly learn whether another hybrid merchant's experience item is a better fit than the one from the hybrid merchant that the customer feels tied to. And from Condition 2, we know that the reservation utility's adjustment should be less than the inconvenience of going on a shopping trip to a hybrid merchant's physical shop but greater than the cost of inconvenience of going around physical shops. Whereas the first cost is manageable (as physical shops tend to be grouped together in shopping centres or streets dedicated to shopping), there is a relatively substantial cost associated with a shopping trip from the customer's house to the merchant's physical shop. Specifically, the greater cost should be more than the total magnitude of the item's fit value and the price adjustment. If this happens, Condition 3 is met.

4.2. Practical implications

Some important insights yield from the analysis of the model, and a careful look at the optimal strategic-path in the equilibrium solution. These observations lead us to suggest some marketing practices specifically for experience goods. They can be particularly useful for marketers and those in charge of established merchants who have integrated (or are considering integrating) digital media into their distribution structure. But they could also be considered by pure-play experience goods' e-merchants, to help them define strategies that distinguish their value proposition.

- *Invest in the brand strategy in the physical channels*. As is evidenced in the first stage of the equilibrium solution, the physical environment plays a lead role in acquiring prospects. These are customers with no prior knowledge of the hybrid merchant's value proposition, and have, until now, only bought from other merchants. This result is in accordance with those reported in recent studies of Fernández-Sabiote and Román (2012) and Huang et al. (2009). In light of this finding, we can suggest that hybrid experience goods' merchants, who are keen to define an optimal price proposition, need to invest strongly in their physical channels' brand strategy. This will help solidify brand reputation, attract new customers, and further forge new customer relationships.

[1] Proposition has a longer proof, available in Appendix A. A sketch of the proof is provided here.

- *Adopt higher prices by means of an integrated pricing strategy*. Shopping tools might help guide customer decisions through criteria that are different from brand reputation (e.g. user reviews on relationship of quality to price, product and merchant comparisons on the basis of price, etc.), and pushing up price-based competition. Despite this, shopping tools do not necessarily represent a threat to the price levels (and income) of established experience goods' merchants. On the contrary, and as seen in the second stage of the equilibrium, an optimal price proposition implies higher prices for hybrid merchants with reputable brands. And, as also seen in the model, this first requires the hybrid merchant to integrate the price proposition across channels. Such integration will avoid disparities within the distribution structure, which could generate internal conflict.
- *In digital media, learn and take advantage of the values associated with the brand and knowledge of the clientele*. The third stage of the equilibrium indicates that, when facing repeat purchases of experience goods they know well, customers who already have ties to the hybrid merchant's physical are more inclined to replace the traditional channel for the virtual shop. This further coincides with evidence gathered from previous studies for established merchants with virtual shops (Cao & Gruca, 2003; Dinlersoz & Pereira, 2007; Kurata et al., 2007). On the basis of these results, it seems fair to suggest that the online channel should mainly orientate towards solidifying merchants' relationships with informed, loyal consumers. Business intelligence systems, data integration and traditional and social CRM solutions, are thus needed to capitalise, in the virtual shop, the customer's knowledge and experience with the brand at the conventional physical channel: this maximizes the brand's value proposition, and applies knowledge into the online environment that has been gathered over time about the clientele.
- *Exploit the advantage of convenience and switching to the online channel*. The model shows how the hybrid merchants most relevant to customers are those who: (1) make use of online channels to offer a more convenient purchase experience (by helping them save time, travel and effort); (2) facilitate switching from the physical shops (where customers familiarise themselves with the value proposition) to the digital channel. Both convenience and ease of switching to the virtual shop turn out to be differentiating attributes of the hybrid merchant's value proposition, so they require special attention in the marketing strategy.

5. Contributions to research and limitations

Overall, this investigation contributes to our understanding of customer-merchant interaction, and its consequences on merchant's decisions, and it does this in four ways.

First, it explores and explains a plausible way through which merchants can learn from customer interaction to create price propositions. By so doing, it extends the new knowledge on the rising service-dominant logic of marketing, and co-creation of value, to the arena of pricing strategy.

Second, the paper theoretically identifies those price propositions that allow merchants to compete to make the highest profits. This represents a contribution to the current knowledge about experience goods digital marketing, an area of digital marketing research that has rarely received attention. This is largely due to the difficulties of e-marketing these goods, except for cases where the customer has learnt about them first-hand. As far as we know, this study is the second investigation, after Lal and Sarvary's (1999), that addresses price levels for the specific territory of digital marketing for experience goods.

We have built an analytical model based on a feasible scenario that focuses on digital marketing for experience goods. On the one hand, customers who have learnt the experiential value proposition in the physical channels can apply knowledge acquired to make online purchases. And on the other hand, established merchants, who run reputable brands and have a solid base of loyal customers in physical environments, have added the online channel into their distribution structures. The proposed model incorporates a dynamic character, insofar as it contemplates iterative decisions from merchants. And it endogenises the strategic behaviours of customers – who are supposed to attempt to gain the greatest utility.

Third, the equilibrium solution derived from the model gives account for a realistic scenario in which hybrid merchants might raise prices. These findings contribute to the e-pricing literature by offering analytical support for predictions made about the impact of branding, the advantage of convenience, channel integration, and CRM programmes on price propositions. The solution we have found indicates that when the customer's knowledge of the brand is relevant to their current goods purchasing decision, an integrated distribution strategy that further mines the advantage of convenience paves the way to increase and improve the merchant's value proposition. In turn, this offers important opportunities to increase prices.

And the fourth contribution is made in the rising territory of multichannel customer management. Rather than proposing to study and manage pricing strategies for offline channels and the digital channel separately, our model notes the benefits of simultaneously utilising, and coordinating, conventional channels with the internet and social media. The modelling is designed to understand how knowledge gathered by customers in physical channels influences their purchase decisions online, and find optimum price propositions in multichannel retailing.

We acknowledge some limitations in our research due to the simplifying assumptions introduced in the model. It would be desirable for future research to analyse market situations where hybrid merchants might operate with distribution structures that are different from the integrated multichannel (e.g. merchants with physical channels, and independent online business units, which run like pure-play e-tailers). Additionally, it would be interesting to consider environments where the levels of brand reputation, value delivered to the customer, and brand loyalty can vary from one hybrid merchant to another, as it could be accompanied by distinct customer decisions in each case. Future studies could further explore the use of the online channel to expand the merchant's market and consider situations in which customers with no knowledge of the merchant in the conventional channels (e.g. because they are not near the merchant's physical shop) purchase via the online channel, having been attracted by the merchant's online reputation or by other aspects of the value proposition. And it could be beneficial to explore separately the loyalty to the hybrid merchant and the costs incurred by changing providers (switching costs and learning costs), as well as to take into account the aversion to switching from the conventional channel to the online channel. It is desirable that all these scenarios could be analysed in future investigations, and from two perspectives: in a theoretical manner and by checking their applicability. This would allow the corresponding theoretical model to be validated.

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Appendix A. Supplementary material

Supplementary data associated with this article can be found, in the online version, at http://dx.doi.org/10.1016/j.chb.2014.10.013.

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