

# Exploring effects of hotel chain loyalty program

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## Abstract

**Purpose** – *The main purpose of this work is to evaluate the long-term effectiveness of a hotel's chain loyalty program from a behavioral perspective.*

**Design/methodology/approach** – *A Dirichlet model was estimated to assess purchase frequency and hotel choice within one of the biggest hotel chains in Portugal. The sample comprises hotels where a loyalty program was implemented, with a total of 176,099 reservations. Data were extracted from the customer relationship management (CRM) systems of the hotel group.*

**Findings** – *The results suggest that instead of being loyal to a certain hotel, customers are loyal to the branded hotel chain. As the hotels are all part of the branded group, this polygamy is not only accepted but also very welcome.*

**Research limitations/implications** – *The level of penetration and purchase frequency of CRM was measured. Nevertheless, a thorough understanding of these will be critical for the success of this program.*

**Practical implications** – *This research is a step toward assessing hotel chain competitiveness, by improving and suggesting segmented groups of brands/hotels and to induce cross-selling products accepting polygamous loyalty as the only way to sustain long-term relationships with customers.*

**Originality/value** – *This is one of the few research studies, if not the only one, to assess loyalty with tangible indicators, such as purchase frequency. Further, the results suggest that loyalty programs are more effective if multiple options are available and as such, cross-selling is perhaps the only way to fix customers.*

**Keywords** CRM, Loyalty program, Customer loyalty, Dirichlet model, Repeat purchase behavior

**Paper type** Research paper

## 1. Introduction

Internet marketing, as one of the most powerful technological tools, hugely increases competition across products and even more for tourism destinations, and it has changed travelers' behavior. It has enabled customers to engage directly with hotels, without intermediaries (Buhalis and Law, 2008). One of the reactions of the industry was to develop loyalty programs to sustain and enact repeat purchases. These programs, which are supported on one-to-one relationships, provide accurate knowledge of customers' needs and wants (Sharp and Sharp, 1997).

The most common loyalty programs are those of customer relationship management (the so-called CRM). CRM systems have emerged to focus on customer-centric technologies, helping the implementation of loyalty programs, as an "info-structure" to support its interoperability, its personalization and its constant networking (Buhalis, 2003; Buhalis and Law, 2008). CRM studies have been applied in several industries, in particular in airline alliances (Boland *et al.*, 2002), although none of these researches rely on Dirichlet Assumptions. In this sense, loyalty programs could be important in increasing the expected response from hotels to customers, as the data transmitted through the Internet has rapidly increased in recent years. However, it is costly to initiate and maintain those loyalty

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programs because of their long-term commitment (Liu, 2007). The cost-effectiveness of these programs is very controversial. This controversy has been discussed since Cunningham (1957), but no one till now has reached a reasonable answer to the main question that is embedded in CRM philosophy – is it worth spending hundreds of thousands of euros to implement CRM? How effective might these programs be for positioning the brands/hotels in customers' minds? For this discussion, Mägi (2003) argues that membership in loyalty programs increases a customer's share of wallet for four out of seven programs and decreases shares of competitors. This is valid at the chain level and not at the store level.

The challenge of this research is to contribute to reaching a reasonable answer to these questions in a specific context – one of the best-known Portuguese hotel chains worldwide. Loyalty is assumed to be a behavioral construct that can be measured in light of purchase measures (Liu, 2007; Reichheld, 1993; Sharp and Sharp, 1997). Hence, it is assumed that repeat purchase and loyalty are somewhat connected (Dick and Basu, 1994). From an empirical point of view, the study provides tools for hotels to assess from a tangible perspective the effectiveness of loyalty programs. Repeat purchase behaviors are assessed in a temporal and geographical context. Temporal or strength context is used to account for loyalty persistence (Dick and Basu, 1994; Liu, 2007), whereas geographical or differentiation context (Dick and Basu, 1994) comprises the chain effect of this program across the different kinds of hotels of the group.

This article builds on a dynamic performance behavior Dirichlet model to elucidate market structure. The model is able to describe the various brand performance patterns, and in that sense, it also helps explain and estimate them (Ehrenberg *et al.*, 2004). The Dirichlet model estimates these patterns, where big and small brands/hotels differ greatly in how many buyers they have, but usually far less in how loyal these buyers are (Ehrenberg *et al.*, 2004). In this sense, this work blends hotel choice and purchase frequency in a performance assessment process, monitoring results of brands'/hotels' performance, through several key performance indicators. It contributes to hotel brand's market shares positioning within the hotel chain, where geographical and type of hotel penetration rates are estimated.

We first describe the research in a theoretical framework, linking CRM systems with loyalty programs and a Dirichlet model and then develop and estimate the brand performance measures (BPM). The results illustrate how a chain effect between different localizations and types of hotels evolves from the variety integrated effect and heterogeneity among customers to being a loyalty program which helps maintain the polygamy of its customers to achieve customer loyalty. The study has important implications for managers who are charged with allocating resources to improve service benefits and customer relationships over time.

## 2. Theoretical framework

Management of customer relationships is a key activity for the competitiveness of tourism organizations (Buhalis and Law, 2008), as well for the industry as a whole (Frow *et al.*, 2011). CRM constitutes a long-term strategic approach that addresses all aspects of identifying customers, developing customer insights and building customer relationships (Boulding *et al.*, 2005; Frow *et al.*, 2011; Lacey and Morgan, 2009; Liu, 2007).

In any CRM system of the hotel industry, one major element is the measurement process (Boulding *et al.*, 2005). This opens the door to the performance assessment process, one of the five key processes of CRM identified by Frow *et al.* (2011). The performance assessment process ensures that firms' strategic objectives are being delivered in an appropriate and acceptable way, providing firms with the opportunity to gain deeper insights into their customers for future improvements (Boulding *et al.*, 2005; Frow *et al.*, 2011). Enabling performance monitoring in a micro-view, such as key performance

indicators, has become an integral part of the CRM system and, specifically, loyalty programs (Frow *et al.*, 2011).

The idea that loyalty programs are an important component of firms' CRM strategy is widely accepted in marketing and tourism areas (Buhalis and Law, 2008; Hansen *et al.*, 2010; Lacey and Morgan, 2009; Liu, 2007). Loyalty programs or frequency programs are considered one of the best ways of supporting a firms' knowledge base by forcing stronger relationships with customers (Buhalis, 2003; Buhalis and Law, 2008; Hansen *et al.*, 2010).

Traditionally, loyalty programs are identified by their degree of indirect defensive orientation and their two-stage behavior time nature (Liu, 2007; Sharp and Sharp, 1997). The indirect defensive orientation means building a closer program with current customers (Dowling and Uncles, 1997), through points rewards systems or special offers. Clearly, a first short-term effect results in the program points to the time of purchase and second, to a long-term behavior commitment effect through redeeming points for free rewards and, consequently, increasing profits (Dowling and Uncles, 1997; Hansen *et al.*, 2010; Liu, 2007; Sharp and Sharp, 1997).

It is not clear that the long-term nature of loyalty programs ends with customer attrition. However, loyalty programs, supported in dynamic processes and Internet communications technology (Buhalis and Law, 2008), such as CRM systems, give rise to service firms and help them to identify possible "defectors," i.e. find customers who are leaving and trying to win them back (Czepiel and Rosenberg, 1992; Liu, 2007; Reichheld and Sasser, 1990).

Every hotel's performance should be effectively measured on how well performance targets are met (Reichheld, 1993; Reichheld and Sasser, 1990) – the key performance measures. This is why a customer crisis occurs when the service goes unperformed (Czepiel and Rosenberg, 1992). Thus, behavior performance measures are actions which individuals adopt and which change their relationship with their environment. Buhalis and Law (2008) argue that loyalty programs support and help to promote the customization of tourism products. Hence, Sharp and Sharp (1997) argue that loyalty programs have an effect on repeat purchases and that is a first step to understanding the effectiveness of cause-and-effect relationships in the program's system.

Taking repeat purchases as the focus of a loyalty program requires an instrument to measure it and to make this study aware of the effectiveness of the potential of such programs. In this sense, we followed Ehrenberg *et al.* (2004) and Sharp and Sharp's (1997) works who argue that the repeat purchase effect follows a Dirichlet Distribution.

The Dirichlet model is based on the Stated Preference Theory, i.e. a theory about choice between competitive entities such as brands/hotels, which assumes that customers are able to order their preferences across different alternatives (Goodhardt *et al.*, 1984). Moreover, the Dirichlet model does more than explain and describe hotel choice and purchase frequency simultaneously. It also includes estimates of them, allowing the use of various performance patterns over a time-span (Goodhardt *et al.*, 1984; Sharp and Sharp, 1997). However, customer characteristics are not included in this stationary model because these effects are already incorporated in each BPM, and it is not influenced by previous purchases (Ehrenberg *et al.*, 2004).

Using a single statistical model, such as a Dirichlet model, it is comparatively uncomplicated to describe the various performance patterns of the loyalty program, and to specify the distribution of purchases by a population of customers of each of the hotels (Ehrenberg *et al.*, 2004; Goodhardt *et al.*, 1984). The Dirichlet model is particularly relevant for elucidating these purchase behaviors, i.e. market structure, and follows a combination of two probability density functions, the negative binomial distribution (NBD) and the Dirichlet multinomial distribution.

Hence, the Dirichlet is a parsimonious model because it only needs four numerical inputs – b (brand penetration), w (average purchase frequency), B (market penetration)

and  $W$  (market purchase frequency) (Ehrenberg *et al.*, 2004). These inputs give the opportunity to estimate several key BPMs (e.g. penetration, frequency of purchase, repeat buying, 100 per cent loyal) and postulate that each customer has a certain propensity to buy a given brand, i.e. making a reservation at a given hotel. This propensity is assumed to be steady for the time being but to differ across heterogeneous customers (Ehrenberg *et al.*, 2004). Such heterogeneous behavior aggregates to BPMs (Ehrenberg *et al.*, 2004).

Finally, the Dirichlet model also provides benchmarks when analyzing data for another year, country (geographical extensions) or category (Ehrenberg *et al.*, 2004). These benchmarks help in exploring marketing issues, such as customer loyalty programs as an empirical example. The patterns of observed customer purchase behavior associated with this model and study are the most important information for estimating customer behavior (Lacey and Morgan, 2009) and are slowly being recognized over the years, followed by many replications across different hotels, years and countries to develop their generalizability.

### 3. Data and methodology

#### 3.1 Dirichlet assumptions

This work considers five assumptions, following Dirichlet Assumptions and in line with Bassi (2011), Ehrenberg *et al.* (2004) and Goodhardt *et al.* (1984). The first aims to specify the probability vector of the  $i$ th customer card making any specific combination  $\{r_j\}$  of reservations in the  $j = 1 \dots g$  types of hotels with the length  $T$  (succession of reservations). It can be modeled by a multinomial distribution with parameters  $r, p_1, \dots, p_g$ :

$$P(r_1, \dots, r_g) = r! \prod_{j=1}^g \left( \frac{p_j^r}{r_j!} \right)$$

where,  $r$  is the amount of reservations (quantity) made with card  $i$  in Year 1.

The second assumption considers that the probabilities  $p_j$  vary among customers' cards according to a Dirichlet distribution with parameters  $\alpha_1 \dots, \alpha_g$ , i.e:

$$f(p_1, \dots, p_{g-1} | \alpha_1, \dots, \alpha_g) = \frac{\Gamma(\alpha_1 + \dots + \alpha_g)}{\Gamma(\alpha_1) \dots \Gamma(\alpha_g)} p_1^{\alpha_1-1} \dots p_{g-1}^{\alpha_{g-1}-1} (1 - p_1 - \dots - p_{g-1})^{\alpha_g-1}$$

Successive reservations by the  $i$ th customer card are independent. These first two assumptions capture the customer heterogeneity for purchase frequency and for hotel choice (Ehrenberg *et al.*, 2004). As a third assumption, the number of reservations  $n_i$  made by  $i$ th customer card in each of a succession of equal non-overlapping periods of length  $T$ , follows a Poisson distribution with mean  $u_i T$ . The fourth assumption considers a Gamma distribution with parameters  $m$  and  $K$ , which characterizes the variance between mean purchasing rates and each customer card. Assumptions three and four show the probabilistic incidence of specific purchases of the hotel (Ehrenberg *et al.*, 2004). As for the last assumption, customers' hotel-choice probabilities and average-purchase-frequencies are distributed independently (i.e. statistical independence of these two aspects) over the loyalty program customers.

The model follows a negative-binomial distribution with mean  $mT$  and exponent  $k$ , from that of Bassi's (2011) work: the number of reservations of the hotel category made by all customers, in a certain time period (Year 1; Year 2); and the number of reservations a customer makes of each of the  $g$  geographical types of hotels in a period of time  $T$ . This is called the NBD-Dirichlet model:

$$\begin{aligned} f_{k, m, \alpha_1, \dots, \alpha_g}(r_1, \dots, r_g) &= f(k, m, k) f_{\alpha_1, \dots, \alpha_g}(r_1, \dots, r_g | r_1 + \dots + r_g = r) \\ &= \frac{(k + r - 1)!}{r! (k - 1)!} \left( \frac{k}{m + k} \right)^k \left( 1 - \frac{k}{m + k} \right)^r \frac{\Gamma(\alpha_1, \dots, \alpha_g) k!}{\Gamma\left(\sum_{j=1}^g \alpha_j + r\right)} \prod_{j=1}^g \frac{\Gamma(\alpha_j + r_j)}{r_j! \Gamma(\alpha_j)} \end{aligned}$$

Finally, to activate the model,  $g + 2$  reservations need to be estimated:  $m, k, \alpha_1 \dots, \alpha_g$ . With the  $g$  observed per card purchase rates  $m_j$ , the iterative estimation procedure

calculates the hotel category purchase rate as  $m = \sum_{j=1}^g m_j$  and equals the theoretical and observed hotel chain market shares:

$$\frac{\alpha_j}{\sum_{j=1}^g \alpha_j} = \frac{m_j}{\sum_{j=1}^g m_j}$$

Further, the hotel chain's market shares must add up to 1, so there are  $g - 1$  equations to be solved. Parameter  $K$  is calculated by fitting the NBD model to the distribution of reservations of the hotel category.

There are two aspects of customer diversity in the Dirichlet model included in this work, namely, how customers differ from each other in: their purchasing rates, and their hotel choice preferences (Goodhardt *et al.*, 1984). Thus, the methodology used in this research follows the Dirichlet model basic lines, which directly or indirectly describe the buying behavior patterns and also analyze differences in customers' preferences for the 12 hotels included in the same chain group.

### 3.2 Data and estimation procedures

Based on the Dirichlet model, this research rests on a quantitative observed behavior and confirms the influence of the environment of brands/hotels and customers. Therefore, this research is based on data drawn from a hotel chain's loyalty program (CRM systems) and covers purchases during the first two years of the program, from April 1, 2011 to March 31, 2012 (Year 1), and from April 1, 2012 to March 31, 2013 (Year 2). The loyalty program membership is free. For each euro spent, the program reverts 10 points for a silver card, 12 points for a gold card and 15 points for a platinum card, and other offers are also included. For this study, there were 23,817 cards issued; 6,057 cards used; and 7,532 reservations for Year 1 and 50,358 cards issued; 31,701 cards used; and 44,274 reservations for Year 2. This sample comprises domestic and international customers for the two years of analysis. Table I show that customers come from Portugal (mainly Year 1) and Europe (mainly Year 2) and are mostly men (70 per cent) of 50 years old, on average. Traditionally the customers of this hotel chain tend to have three or more short breaks along the year, in particular, the ones who have a loyalty card.

Bearing in mind that the aim of the research is to assess the repeat purchase behavior, all the cards with less than two purchases were discarded even because most of them never used the loyalty card after the first purchase. Data were analyzed using Dirichlet.xls software (Kearns, 2009), after a previous validation. The Dirichlet model is usually applied using package software to generate estimates of the brand performance measures (Rungie, 2003). Hence, panel data provide all the necessary inputs to calculate the Dirichlet model and to compare observed data to Dirichlet estimations.

In this work, the iterative estimation method adapted from Bassi's (2011) Technical Note assumes geographical and chain effects of a long-term nature. The iterative procedures adopted require only aggregated data as input, i.e. only input values are needed, such as hotel penetrations  $b_i$  and average purchase rates  $m_j$  in this work. Hence, this study's specification derives from Bassi's (2011) and from Goodhardt *et al.*'s (1984) works, which indicate  $n$  customers making purchases in a market (loyalty program) with  $g$  brands/hotels. The present work considers  $g$  geographical hotels – the ones belonging to the hotel group.

**Table I** Socio-demographic characteristics for Year 1 and Year 2

	Year 1 49-61		Year 2 50-71	
Age (years)				
Country	Portugal	38%	Great Britain	25%
	Great Britain	22%	Portugal	19%
	Germany	7%	Spain	8%
Gender	M – 72%	F – 28%	M – 70%	M – 30%

We consider 12 hotels (five “Historical and Cultural”; and seven “Resorts”) from a total of 82 hotels, belonging to the same hotel group. The five “Historical and Cultural Hotels” are located in Portugal (Algarve, Alentejo, Lisbon and the Tagus Valley (here after LTV), Centre and North regions) and the seven “Resort Hotels” are located in Portugal (Algarve, LTV and Madeira regions), Brazil, Europe, America and Africa. Table II indicates that at 7 of the 12 hotels in the sample, the majority of customers in Year 2 come from a country other than that of the hotel.

Further, the number of countries of customers’ origin increased from 67 to 119 from Year 1 to Year 2, due to the promotion efforts to establish the loyalty card among different nationalities.

#### 4. Results and discussion

The results suggest that this type of hotel chain loyalty program plays a role in customers’ repeat purchases over time, contributing to their loyalty behavior. Hence, results suggest that this loyalty program has contributed to holding some polygamy across the hotels of this group, which is a pattern of hotel customers (member of more than one loyalty scheme), called “polygamous loyalty” by Dowling and Uncles (1997).

In this sense, we illustrate and summarize the common patterns of repeat purchase and hotel choice characterized in the Dirichlet model in the three subsections that follow. The first gives results for the customer heterogeneity and analyses the parameters of the Dirichlet model. The patterns observed and analyzed of the seven brand performance measures (i.e. brand penetration, average purchase frequency, repeat buying, 100 per cent loyal, buying once, buying five or more times and market share) are given in the second subsection. The third and last subsection analyzes the nature and degree of variety on offer in each hotel and the effect of customers’ types of purchases on hotel segmentation.

##### 4.1 Customer heterogeneity in the hotel chain loyalty program

With data on cards issued/used and reservations in 12 hotels in a hotel chain loyalty program, the Dirichlet model was estimated using the iterative method. This model uses observed market penetration and purchase frequency to estimate  $m$  and  $K$  and observed brand penetrations and market shares to estimate  $S$ .

Table III shows the results of parameters  $m$ ,  $k$  and  $S$  for the two years.

Parameter  $m$  represents the mean purchase rate, i.e. it reflects the size of the market (Ehrenberg *et al.*, 2004). This parameter increased from 2.9 in Year 1 to 3.3 in Year 2, meaning that market penetration does not vary greatly among customers in the different

Table II Other socio-demographic characteristics for Year 1 and Year 2		
Hotel	Region of customers' majority	
	Year 1	Year 2
Madeira Resort Hotel	Europe	Europe
LTV Resort Hotel	Portugal	Europe
Europe Resort Hotel	Europe	Europe
Algarve Resort Hotel	Portugal	Europe
North Historical and Cultural Hotel	Portugal	Portugal
Centre Historical and Cultural Hotel	Portugal	Portugal
LTV Historical and Cultural Hotel	Brazil	Europe
Africa Resort Hotel	Portugal	Portugal
Alentejo Historical and Cultural Hotel	Portugal	Brazil
Algarve Historical and Cultural Hotel	Portugal	Europe
Brazil Resort Hotel	Brazil	Brazil
America Resort Hotel	America	America



**Table III** Parameters  $m$ ,  $k$  and  $S$  for Year 1 and Year 2

Parameter	Year 1	Year 2
M	2.9	3.3
K	1.921	1.540
S	7.8	5.4

brands/hotels. This result suggests the extending effect of time of loyalty program, i.e. that they do not have an immediate effect on customer behavior.

The parameter  $k$  reflects the extent to which overall purchasing offers differ from the mean, i.e. how often they buy (Stern and Hammond, 2004). Results reveal that parameter  $k$  decreased from 1.921 in Year 1 to 1.540 in Year 2, and this means that purchasing frequencies vary greatly among customers (Bassi, 2011), mostly in the second year, where penetration rate is higher. Further, parameter  $S$  also decreases in Year 2 (5.4) compared with Year 1 (7.8), suggesting that purchase probabilities differ greatly among customers (Bassi, 2011). Overall these results, in accordance with Bassi, 2011, pointed out that these customers are heterogeneous and this heterogeneity removes the need for differential strategies (Ehrenberg *et al.*, 2004).

Thus, parameters  $m$ ,  $k$  and  $S$  make estimations of the loyalty program behavior by estimating some BPMs.

#### 4.2 The two-year effects on BPMs

In Table IV, we present the observed values derived from the brand performance measures, along with their Dirichlet benchmarks (estimated values) for two years. Brand penetration ( $b_j$ ) is the key factor that changes when sales increase and is one of the most important BPMs (Ehrenberg *et al.*, 2004). This performance measure indicates the percentage of customers buying (reservation) at least once in a specified time period for the total of existing clients (cards issued) in the loyalty program (Sharp and Sharp, 1997). The average purchase frequency ( $w_j$ ) is the number of purchases per customer (reservation) in a specified time for the total of cards used in the loyalty program (Sharp and Sharp, 1997). The 100 per cent loyal BPM is the one where the customer returns to the same hotel in two equal-length time periods and repeat buying is the BPM where the customer returns not to the same hotel, but to the same hotel chain.

To examine differences between brands/hotels in the two equal-length time periods (years), brand performance measures were adopted, the results of which are shown in Table IV. According to the figures shown in Table IV, there are no significant differences between observed and estimated values, mainly at the second year of the loyalty program, due to the fact of the first year being the beginning of the loyalty program. Table IV was built following observed brand penetration ( $b_j$ ) from the highest to the lowest value. All of the 12 hotels analyzed have an increased observed penetration rate from Year 1 to Year 2. Results also show the connection between observed average purchase frequency ( $w_j$ ) and observed buying five or more times – higher values of the former correspond to higher values of the latter (e.g. LTV Resort Hotel with 2.89 of  $w_j$  corresponding 5.22 per cent of buying five or more times in Year 1; Africa Resort Hotel with 3.24 of  $w_j$  corresponding 2.50 per cent of buying five or more times in Year 1; and Brazil Resort Hotel with 2.44 and 2.06 of  $w_j$  corresponding 3.81 per cent and 3.63 per cent of buying five or more times in Year 1 and Year 2, respectively).

Furthermore, we analyze groups of brands/hotels by comparing estimated and observed values. Results indicate that four types of groups exist:

1. the “small trend” group in almost all BPMs (Alentejo and Algarve Historical and Cultural Hotels; Africa Resort Hotel);

**Table IV** Brand performance measures for year 1 and year 2—comparative table (observed and estimated)

	$b_j$ (%)		$w_j$		Market share		100% Loyal		Repeat buying (%)		wpl		Once (%)		5 or more %	
	Observed (%)	Estimated (%)	Observed (%)	Estimated (%)	Observed (%)	Estimated (%)	Observed (%)	Estimated (%)	Observed (%)	Estimated (%)	Observed (%)	Estimated (%)	Observed (%)	Estimated (%)	Observed (%)	Estimated (%)
<i>Year 1</i>																
Madeira Resort Hotel	2.07	1.84	1.11	1.24	9.86	2.40	9.49	2.44	28.36	4.95	88.98	82.41	0.34	0.40		
LTV Resort Hotel	0.54	1.27	2.89	1.23	2.59	13.05	9.43	13.21	27.94	4.96	22.19	82.69	5.22	0.39		
Europe Resort Hotel	0.64	1.03	1.98	1.23	3.06	16.57	9.41	16.71	27.77	4.96	34.12	82.81	4.01	0.38		
Algarve Resort Hotel	1.09	0.98	1.12	1.23	5.18	6.20	9.41	6.20	27.73	4.96	84.58	82.84	0.33	0.38		
North Historical and Cultural Hotel	0.68	0.58	1.05	1.23	3.25	2.34	9.37	2.99	27.44	4.97	93.38	83.04	0.00	0.37		
Centre Historical and Cultural Hotel	0.53	0.50	1.16	1.23	2.54	7.33	9.36	8.83	27.38	4.97	80.83	83.08	0.17	0.37		
LTV Historical and Cultural Hotel	0.33	0.30	1.10	1.23	1.57	2.42	9.34	2.96	27.23	4.97	93.55	83.18	0.00	0.36		
Africa Resort Hotel	0.11	0.28	3.24	1.23	0.51	10.00	9.34	11.67	27.22	4.97	19.17	83.19	2.50	0.36		
Alentejo Historical and Cultural Hotel	0.32	0.28	1.08	1.23	1.51	4.75	9.34	5.59	27.22	4.97	88.83	83.19	0.00	0.36		
Algarve Historical and Cultural Hotel	0.24	0.21	1.12	1.23	1.12	6.77	9.33	7.14	27.17	4.97	85.34	83.22	0.00	0.36		
Brazil Resort Hotel	0.09	0.19	2.44	1.23	0.44	13.33	9.33	14.29	27.15	4.97	26.67	83.24	3.81	0.36		
America Resort Hotel	0.04	0.04	1.22	1.23	0.19	15.56	9.32	15.56	27.04	4.98	66.67	83.31	0.00	0.36		
<i>Year 2</i>																
Madeira Resort Hotel	6.67	6.59	1.40	1.42	8.07	11.78	9.27	11.96	39.61	5.65	64.45	73.61	1.61	1.57		
Algarve Resort Hotel	3.74	3.41	1.27	1.39	4.52	10.67	8.96	11.34	37.69	5.70	68.10	75.09	1.16	1.39		
LTV Resort Hotel	2.95	3.03	1.42	1.39	3.57	13.73	8.92	14.17	37.46	5.70	56.94	75.27	1.84	1.37		
North Historical and Cultural Hotel	2.72	2.79	1.42	1.38	3.29	8.73	8.90	10.72	37.31	5.71	73.58	75.38	0.32	1.36		
Europe Resort Hotel	1.18	2.01	2.36	1.38	1.42	15.18	8.83	16.11	36.85	5.72	27.50	75.73	4.71	1.32		
Centre Historical and Cultural Hotel	1.80	1.80	1.38	1.38	2.17	9.06	8.81	11.75	36.72	5.72	69.10	75.83	0.79	1.31		
LTV Historical and Cultural Hotel	1.75	1.53	1.20	1.37	2.12	8.84	8.78	10.48	36.55	5.73	75.19	75.95	0.31	1.29		
Alentejo Historical and Cultural Hotel	1.23	1.01	1.12	1.37	1.48	5.21	8.74	6.89	36.24	5.73	85.37	76.19	0.04	1.27		
America Resort Hotel	0.44	0.90	2.78	1.37	0.53	18.35	8.73	18.35	36.17	5.73	18.60	76.24	4.80	1.26		
Algarve Historical and Cultural Hotel	0.80	0.80	1.36	1.37	0.97	8.96	8.72	13.57	36.11	5.74	66.21	76.28	0.68	1.26		
Brazil Resort Hotel	0.37	0.56	2.06	1.37	0.45	12.48	8.70	15.09	35.97	5.74	35.85	76.39	3.63	1.24		
Africa Resort Hotel	0.36	0.43	1.62	1.36	0.44	5.65	8.69	7.13	35.90	5.74	54.98	76.45	1.78	1.24		



2. the “med/big trend” group in almost all BPMs (LTV, Centre and North Historical and Cultural Hotels; America and LTV Resort Hotels);
3. the “logged hotels” group (Brazil and Europe Resort Hotels); and
4. the “stabilized hotels” group (Madeira and Algarve Resort Hotels).

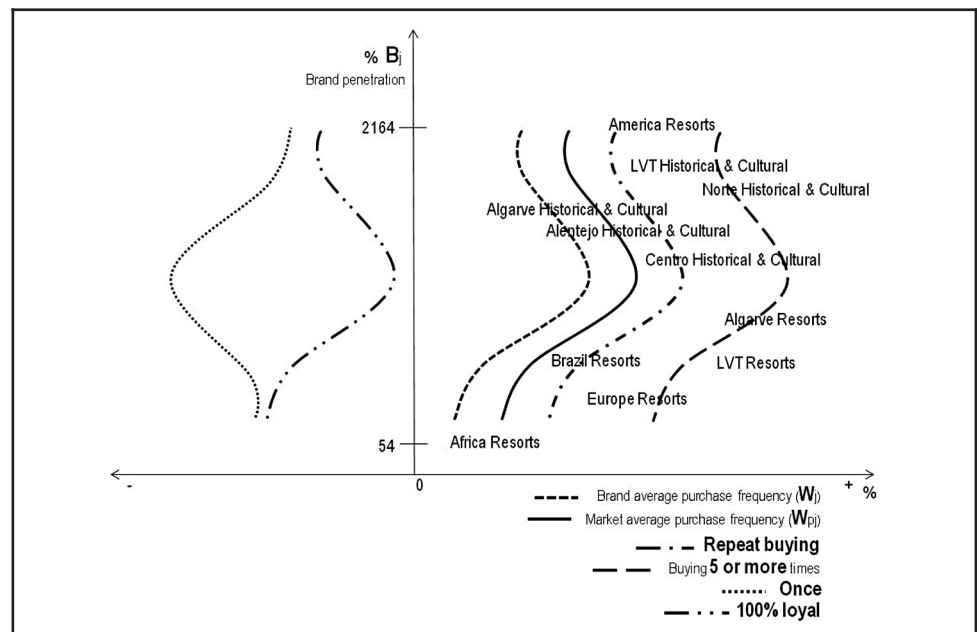
The “small trend” group is identified when:

- the estimated brand penetration is lower than observed brand penetration ( $Eb_j < Ob_j$ ); and
- estimated average purchase frequency is higher than observed average purchase frequency ( $Ew_j > Ow_j$ ).

The “med/big trend” group follows the opposite pattern (Bassi, 2011). Although results indicate that Centre and LTV Historical and Cultural Hotels have an  $Eb_j > Ob_j$ , the fact is that both increased their market share opposed to Alentejo and Algarve Historical and Cultural Hotels and Africa Resort Hotel. LTV Resort Hotel and North Historical and Cultural Hotel tend toward being “stabilized hotels,” such as Madeira and Algarve Resort Hotels. These last hotels have the highest market shares, although  $Eb_j > Ob_j$ . Finally, it is implied that the frequency with which customers of a brand/hotel bought the whole category ( $wp_j$ ) increases slightly from 10 to 13 with decreasing market share. Table IV results indicate that this is the typical trend which was called “natural monopoly” by McPhee (1963). This effect is more evident in Madeira and Algarve Resorts, which suggests that these “monopolize” light category customers (Ehrenberg *et al.*, 2004). In this sense, Figure 1 helps us to compare these findings with a dynamic analysis through a growth evolution [(Year 2-Year 1)/Year 1] of brand performance measures (BPM).

Figure 1 was initially designed in terms of brand penetration (b) (y-axis) and later according to other BPMs, such as brand and market average purchase frequency (w and  $wp_j$ ), 100 per cent loyal, repeat buying, buying once and five or more times (x-axis). Figure 1 analysis mostly focuses on the effects of correlations/synergies between BPMs.

**Figure 1** Brand penetration associations with different purchases repeat patterns for Year 1 and Year 2 – (observed and estimated)



First, as the brand penetration goes up all the other BPMs identified go up to a certain point and then go down, except buying once, which goes down more and more. However, there is an “optimal point” at the Madeira Resort Hotel, where all these BPM's reach their maximum of growth evolution, except buying once, which reaches its maximum of decline.

Second, [Figure 1](#) shows that, on the one hand, Algarve, LTV and America Resort Hotels; North, Centre and LTV Cultural and Historical Hotels follow the same path of Madeira Resort, a way to reach the “optimal point”. On the other hand, Algarve and Alentejo Cultural and Historical Hotels, Brazil, Europe and Africa Resort Hotels, have to make an effort to increase the frequency of purchase and brand penetration, respectively.

Finally, [Figure 1](#) indicates a decrease in small brands/hotels, with lower average purchase frequency, meaning a tendency for their customers to buy less often ([Ehrenberg et al., 2004](#)). This kind of “punished twice” effect just for being small was called “double jeopardy effect” by [McPhee \(1963\)](#), who explained it as a statistical selection effect. This behavioral effect, clearly identified in the Africa Resort Hotel, means that the less popular a hotel is, the less loyal its customers tend to be ([Ehrenberg et al., 2004](#)). If a customer buys little from the firm, he or she will need to wait a long time for a reward ([Liu, 2007](#)). Thus, the customer of Africa Resort Hotel may not consider the loyalty program relevant. However, if a customer repeatedly buys, it is because they are truly fond of the program ([Stern and Hammond, 2004](#)). In this sense, it is important to analyze these effects on customers' behaviors and compare them with the variety of hotels.

#### ***4.3 The persistence effect of the types of customers' purchases and seeking a variety of hotels***

In these first two years of the loyalty program, brands/hotels present differences in observed and estimated brand performance measures. There are hotels with a higher observed average purchase frequency than would be expected and a lower observed penetration than estimated (Africa, Brazil, Europe and LTV Resort Hotels), i.e. selling more often to the same customer than would be the norm, called excess loyalty by [Sharp and Sharp \(1997\)](#). However, almost all 12 hotels have increased 100 per cent loyal (BPM), showing the opposite defended by [Sharp and Sharp \(1997\)](#), which they called “divided loyalty,” a generalized decrease in 100 per cent loyal (BPM).

Despite the heterogeneity among customers, they are widely expected to fall into relatively homogeneous and recognizable sub-groupings ([Ehrenberg et al., 2004](#)), giving the opportunity for segmentation between brands/hotels.

Results also show an increase in the repeat purchase item, which could be a non-loyal attitude toward the recently opening hotels, i.e. an inability to distinguish advantages or that all competing hotels are seen as similar ([Dick and Basu, 1994](#)). However, the reason for the increase in repeat purchase is likely to be inertia, defined as spurious loyalty or true loyalty, i.e. the customer perceives little differentiation among alternative hotels ([Cunningham, 1957](#); [Dick and Basu, 1994](#)).

## **5. Conclusions and strategic implications**

### ***5.1 Conclusions***

The Dirichlet model offers feasible methodological paths to explain BPM patterns, as it allows a combination of purchasing rates and purchasing hotel behavior in a long-term or/and geographical level. This model considers three parameters ( $m$ ,  $k$ ,  $S$ ), where  $m$  reflects the market share,  $k$  refers to the repeat frequency and  $S$  the purchase probabilities. Thus, the hotels' positioning, the purchase frequency heterogeneity at geographical and temporal level, and future choice patterns are underlined by comparing the coefficients of these parameters by themed hotel. Empirically, the results suggest that heterogeneity increases along the two years of the hotel chain loyalty program, as at themed hotels, voiding the need for segmentation efforts in the execution of the program design and

communication strategies. In fact, customer behavior differs according to localizations (in Portugal – North, Centre, LTV, Alentejo and Algarve and outside Portugal – America, Africa, Europe and Brazil) and type of hotel (Resort Hotels or Historical and Cultural Hotels). These heterogeneities suggest that loyalty programs tend to intensify purchase frequency.

Further, the hotel chain's loyalty program may result in an increase of penetration mainly at Historical and Cultural Hotels (low before the program's implementation) and in more purchase frequency (low before the program's implementation) mainly at Resort Hotels. There is also an increased return buying rate for any hotel and a decrease in the 100 per cent loyal rate. In this sense, the low permeability between hotels helps to achieve a chain effect between hotels and therefore helps to plug the polygamy which exists inside customers.

Changing the fundamental repeat purchase patterns of markets is very difficult. However, it is clearly possible to alter repeat purchase patterns, at least to a small degree, and loyalty programs are probably the only marketing effort which deliberately focuses on bringing about such a change. In this work, these changes in patterns by the hotel loyalty program are achieved through a "chain loyalty" (with different types of hotels and localizations), through the willingness of the hotel to institute a loyalty program that consists of a "village-type networking of polygamous customers," helping to achieve customer loyalty.

### *5.2 Practical implications*

The findings of the study reveal the need and importance of consolidating the hotel group's loyalty program to continuously improve the segmented offers.

In this work, results show the level of importance of increasing the number of customers. Therefore, the data obtained in this work suggested four main groups ("small trend"; "medium/big trend"; "logged hotels"; and "stabilized hotels"). These groups represent the hotels' market share tendency in the Hotel Chain based on the results of the BPM. Specifically, "small trend" is a group containing the smaller hotels (Alentejo and Algarve Historical and Cultural Hotels; and Africa Resort Hotel) and "medium/big trend" the opposite (LTV, Centre and North Historical and Cultural Hotels; and America and LTV Resort Hotel). The "logged" group (Brazil and Europe Resort Hotels) has a huge potential for growth, but it has not increased their penetration rate enough, which happens with the "stabilized" group (Madeira and Algarve Resort Hotels).

Furthermore, results also reflect the need to increase the average amount bought at each reservation occasion and to induce cross-product buying by existing customers. Due to these results and based on the four main groups' classification, we propose reinforcing communications by creating four segment groups (1 – Algarve, Alentejo, LTV, Centre and North Historical and Cultural Hotels; 2 – Africa, Europe and Brazil Resort Hotels; 3 – Algarve, Madeira and America Resort Hotels; 4 – LTV Resort Hotel) to segment suitable packages of services. In this sense, Groups 1 and 4 need more "heavy buyers," i.e. increasing the number of times of returning; and Groups 2 and 3 need more "recent non-buyers and light buyers," i.e. more customers. To make this possible, the hotel group should implement intensive extra-product promotions in Group 1 (e.g. cross-product coupons and "stay-in coupons" to be discounted on the next reservation), intensive price-related promotions in Group 2 (e.g. site sales and "on-time coupons" to be discounted at check-out and after subscription to the loyalty program), some price-related promotions in Group 3 (e.g. site sales or "on-time coupons") and some extra-product promotions in Group 4 (e.g. cross-product coupons or "stay-in coupons"). These four segmented groups will help justify the importance of a hotel chain's loyalty program.

### *5.3 Limitations*

This paper adopted the iterative estimation model. The principle of aggregation, i.e. penetration rate and purchase frequency, however, neither explains behavioral variability

across the 12 hotels nor does it permit prediction of a specific behavior in a given hotel. It is necessary to thoroughly study the frequencies estimated to perform a given behavior. In addition, this paper only focused on the best hotel in each region/localization, independently of its dimension. This research is also limited by the time frame; further research should consider more years and even assessing the impact of these loyalty programs in other competitors. Further, comparing these results with the financial achievements of the hotel chain may provide an insightful contribution about the cost effectiveness of implementing loyalty programmes.

Although this study focused on a behavioral perspective, it does not imply that customer loyalty is entirely explained. It would help to consider various possible causal sources such as socio-demographic and attitudinal factors, such as those measuring satisfaction, commitment, trust and quality relationship (and also the influence of the Internet). These attitudinal ingredients also contribute to understanding customers' behavior, choices, concerns and determinants. Finally, conducting a comparative study with other hotel groups may provide more insights about segmentation procedures.

## References

- Bassi, F. (2011), "The Dirichlet model: analysis of a market and comparison of estimation procedures," *Marketing Bulletin*, Vol. 22 No. 1, pp. 1-11.
- Boland, D. Morrison, D., Morrison, D. and O'Neill, S. (2002), "The future of CRM in the airline industry: a new paradigm for customer management," *IBM Institute for Business Value*, Vol. 3 No. 1, pp. 1-17.
- Boulding, W. Staelin, R. Ehret, M. and Johnston, W. (2005), "A customer relationship management roadmap: what is known, potential pitfalls and where to go," *Journal of Marketing*, Vol. 69 No. 4, pp. 155-166.
- Buhalis, D. (2003), *Etourism: Information Technology for Strategic Management*, Prentice Hall, London.
- Buhalis, D. and Law, R. (2008), "Progress in information technology and tourism management: 20 years on and 10 years after the internet – the state of etourism research," *Tourism Management*, Vol. 29 No. 4, pp. 609-623.
- Cunningham, R. (1957), "Brand loyalty – what, where, how much?," *Harvard Business Review*, Vol. 34 No. 1, pp. 116-128.
- Czepiel, J. and Rosenberg, L. (1992), "A marketing approach for customer retention," *Journal of Product and Brand Management*, Vol. 1 No. 1, pp. 27-33.
- Dick, A. and Basu, K. (1994), "Customer loyalty: toward an integrated conceptual framework," *Journal of the Academy of Marketing Science*, Vol. 22 No. 2, pp. 99-113.
- Dowling, G. and Uncles, M. (1997), "Do customer loyalty programs really work?," Research Brief No. 1, Centre for Corporate Change at the Australian Graduate School of Management.
- Ehrenberg, A. Uncles, M. and Goodhardt, G. (2004), "Understanding brand performance measures: using dirichlet benchmarks," *Journal of Business Research*, Vol. 57 No. 12, pp. 1307-1325.
- Frow, P., Payne, A., Wilkinson, I. and Young, L. (2011), "Customer management and CRM: addressing the dark side," *Journal of Services Marketing*, Vol. 25 No. 2, pp. 79-89.
- Goodhardt, G., Ehrenberg, A. and Chatfield, C. (1984), "The Dirichlet: a comprehensive model of buying behavior," *Journal of the Royal Statistical Society*, Vol. 147 No. 5, pp. 621-655.
- Hansen, J., Deitz, G. and Morgan, R. (2010), "Taxonomy of service-based loyalty program members," *Journal of Services Marketing*, Vol. 24 No. 4, pp. 271-282.
- Kearns, Z. (2009), "Dirichlet.xls," *Marketing Bulletin*, Vol. 14, Technical Note 3.
- Lacey, R. and Morgan, R. (2009), "Customer advocacy and the impact of B2B loyalty programs," *Journal of Business and Industrial Marketing*, Vol. 24 No. 1, pp. 3-13.
- Liu, Y. (2007), "The long-term impact of loyalty programs on consumer purchase behavior and loyalty," *Journal of Marketing*, Vol. 71 No. 4, pp. 19-35.
- McPhee, W. (1963), *Formal Theories of Mass Behavior*, Free Press, New York, NY.

Mägi, A. (2003), "Share of wallet in retailing: the effects of customer satisfaction, loyalty cards, and shopper characteristics," *Journal of Retailing*, Vol. 79 No. 2, pp. 97-106.

Reichheld, F. (1993), "Loyalty-based management," *Harvard Business Review*, Vol. 71 No. 2, pp. 64-73.

Reichheld, F. and Sasser, E. (1990), "Zero defections: quality comes to services," *Harvard Business Review*, Vol. 68 No. 5, pp. 105-111.

Rungie, C. (2003), "How to estimate the parameters of the Dirichlet model using likelihood theory in excel," *Marketing Bulletin*, Vol. 14 No. 3, pp. 1-9.

Sharp, B. and Sharp, A. (1997), "Loyalty programs and their impact on repeat-purchase loyalty patterns," *International Journal of Research in Marketing*, Vol. 14 No. 5, pp. 473-486.

Stern, P. and Hammond, K. (2004), "The relationship between customer loyalty and purchase incidence," *Marketing Letters*, Vol. 15 No. 1, pp. 5-19.

### Further reading

Bolton, R., Kannan, P. and Bramlet, M. (2000), "Implications of loyalty program membership and service experiences for customer retention and value," *Journal of the Academy of Marketing Science*, Vol. 28 No. 1, pp. 95-108.

Ehrenberg, A., Goodhardt, G. and Barwise, T. (1990), "Double jeopardy revisited," *Journal of Marketing*, Vol. 54 No. 3, pp. 82-91.

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