Exploring competing models on sacrifices, quality, value, satisfaction and loyalty with PLS and partial correlations

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Abstract

Analysing the order and intensity of the links between sacrifices, quality, value, satisfaction and loyalty has deeply interested tourism researchers for the last decade. This work reviews previous contributions on modelling these variables in tourism literature, analysing each of the links and depicting areas of consensus and controversies. This work seeks to add to this stream of research pursuing two objectives. The first is to contrast two competing models of the relationships between these five constructs: Cronin et al. (2000)'s model, then replicated in Brady et al. (2005) and an alternative model that contemplates the consensus (the relationships quality-value, quality-satisfaction, value-loyalty and satisfaction-loyalty) and proposes a contrast of three of the controversies: relationships sacrifices-quality, value-satisfaction and quality-loyalty. The second objective, methodological, is to propose the study of partial correlations as a technique for exploring relationships between constructs for building a better global causal model. After testing the psychometric properties of the scales, both models are contrasted with PLS (MBPLSPM) on a sample of 400 hotel guests, finding improved results for the model that proposes a chain of effects sacrifices-quality-value-satisfaction-loyalty. The discussion of the results suggests conclusions on the richness and particular features of these structures for consumer behaviour in tourism.

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Introduction

Within tourism literature of the last two decades, there is a plethora of empirical works on the relationships between five key variables in the study of tourist consumer behaviour: service quality, perceived sacrifices, perceived value, customer satisfaction, and loyalty (as

willingness to recommend and/or repeat purchase). Managerially, all of them have been considered for long drivers of competitive advantages for hospitality and tourism firms (Brodie et al., 2009; Chen & Tsai, 2007; Hu et al., 2009). Therefore, methodologically, innumerable structural models have been built,

seeking to generalise a pattern of relationships between these constructs, starting with service quality, finishing with loyalty, and adding in between what Lee, Petrick and Crompton (2007, p.402) coined as “intermediary constructs” (namely value and satisfaction). This trend of research that seeks to “explore the relations between consumer perceptual constructs such as perceived value, satisfaction and loyalty” has been labelled as “inter-variable approach” in contrast to an intra-variable approach, focussed in dimensions of any of these variables (Gallarza & Gil-Saura, 2006, p.438).

However, despite the abundant literature on this inter-variable approach to consumer behaviour awoken in services and tourism literature, the exact nature of these relationships and their effects on real behaviour intentions offers contrasted results. As stated by Boksberger and Melsen (2011, p.233) “while consensus exists that service quality, customer satisfaction and perceived value predict behavioural intentions... conflicting arguments have been made as to their differences, similarities, linkages, temporal order and overall relationship”.

Among the early works, Cronin et al. (2000)'s work marks an important moment in the relationships of antecedents, mediators and consequences within these variables. Their study understands that consumer behaviour should be modelled simultaneously with quality, value, satisfaction and that the effects of these variables on purchase intentions are “comprehensive and complex” (p.210). A few years later, the same authors with a broader team (Brady et al., 2005) test and again validate the same proposal, as an alternative to other structures, with varied results according to countries and industries. Within tourism-related works, authors such as Petrick (2004) have followed this same pattern or relationships, with also contrasted results.

Taking these works as reference, the present study seeks to add to this stream of inter-variable research, theoretically by providing a critical review on previous works, highlighting four consensus and three controversies, and empirically pursuing two objectives. The first is

to contrast two competing models of the relationships between these five constructs - sacrifices, quality, value, satisfaction and loyalty-, Cronin et al. (2000)'s model, then replicated in Brady et al. (2005), and the model built in the light of the consensus and controversies found in the literature review. The second objective is methodological and consists in proposing the study of partial correlations as a technique for exploring relationships between constructs in order to approach each of these relationships (without losing the collective perspective of the structure of the five constructs) and thus build a better global causal model.

The justification for this twofold objective lies in the spirit of some statements on this chain of effects, made in tourism literature: “This chain marks an important consensus in the services marketing and consumer behaviour literature which has taken several decades to achieve. However, we also believe that further, greater efforts will be needed to validate this chain of effects...and that will necessarily lead to a reconsideration of the goodness of structural equations models and the suitability of the techniques used to contrast them (EQS, PLS, LISREL, and others)” (Gallarza & Gil-Saura, 2008, p.13). Accordingly, contribution to previous works on this fecund line of research is to bring evidence on the diversity of proposals (both by the literature review that highlights controversies and agreements, and by empirically testing two competing models), and therefore to propose partial correlations as a preliminary step before conducting SEM to deep the level of analysis of tourism researchers.

To respond to these issues, this work is organised as follows: the theoretical framework includes a review of the proposals for modelling the structures of relationships between sacrifices, quality, value, satisfaction and loyalty, underlying the existence of relative areas of agreement and important controversies. Based on this review and retaining the proposal by Cronin et al. (2000) and Brady et al. (2005), this work proposes an alternative model that contemplates the areas of agreement and proposes a contrast of three of the controversies. Then, after testing the

scales' psychometric properties, both models are contrasted with PLS on a sample of 400 hotel guests, finding better results for the proposed model, and guiding the reasoning through the analysis of simple correlations. The discussion of the results suggests conclusions on the richness and particular features of these structures for consumer behaviour in tourism.

Theoretical framework

Quality, sacrifices, value, satisfaction and loyalty

To model the factors that affect consumer behaviour, previous works from services literature (e.g. Bolton & Drew, 1991; Brady et al., 2005; Cronin et al., 2000; Ostrom & Iacobucci, 1995) agree to contemplate five constructs: sacrifices, quality, value, satisfaction and behaviour intentions.

In the tourist literature, quality, sacrifices and value were studied first jointly in the early 1990s (e.g. Bojanic, 1996; Jayanti & Gosh, 1996), and later with the subsequent, sequential inclusion of satisfaction and behaviour intentions or loyalty (e.g. Babin & Kim, 2001; Petrick, 2002; Tien-Cole et al., 2002). As a result, in the last decade, tourism and hospitality literature has witnessed the blossoming of a range of empirical studies on the interrelationships between quality, value, satisfaction, and loyalty as a comprehensive and multifaceted way of understanding the consumption of tourism experiences (e.g. in chronological order Gallarza & Gil-Saura, 2006; Hau-siu Chow et al., 2007; Chen & Tsai, 2007; Lee, Yoon & Lee, 2007; Feng & Morrison, 2007; Ryu et al., 2008; Hu, Kandampully & Juwaheer, 2009; Wu & Liang, 2009; He & Song, 2009; Saha & Theingi, 2009; Hutchinson et al., 2009; Brodie et al., 2009; Yoon et al., 2010; Jin et al., 2013; Lee & Min, 2013; Kim et al., 2013; Polo Peña et al., 2013; Etemad-Sajadi & Rizzuto, 2013; Forgas-Coll et al., 2014; Gallarza et al. 2015; Eid, 2015; Akhoondnejad, 2016; Gallarza et al., 2016).

However, in spite of this consistent trend, no unanimity has been reached concerning the nature and number of constructs to be used in SEM models for an overall view of tourism consumer behaviour: some proposals elicit either service quality (e.g. Lee, Yoon & Lee, 2007) or don't consider explicitly value (e.g.

Wien & Olsen, 2012; Jani & Han, 2013; Etemad-Sajadi & Rizzuto, 2013), and some others add to this network other constructs relevant for tourism behaviour such as brand name (e.g. Ainscough, 2005), image (e.g. Ryu et al., 2008 and 2012; Hu et al., 2009), brand equity (e.g. Hutchinson et al., 2009), trust (e.g. Bonson et al., 2015), authenticity (e.g. Akhoondnejad, 2016) involvement (e.g. Chen & Tsai, 2008), or reputation (e.g. Polo Peña et al., 2013). Regarding value, measures found in the literature are very broad: value can be measured with a single construct as "perceived value" (e.g. Chen & Tsai, 2007) or with several value dimensions such as functional, social, emotional (e.g. Williams & Soutar, 2009) or with both approaches –dimensions of value and an overall perceived value– in the same study (e.g. Gallarza & Gil-Saura, 2006; Lee, Petrick & Crompton, 2007; Gallarza et al., 2016).

Concerning loyalty, since the work by Zeithaml et al. (1996), loyalty is commonly known as "behaviour intentions" which as Brady et al. (2005) point out, is a construct that captures different outcome dimensions (repeat purchase, but also recommendation, willingness to purchase at higher prices). Within tourism services, where re-visitation may become difficult as tourists look for novelty in their choices, some works consider different behavioural intentions within a same loyalty construct (e.g. Gallarza & Gil-Saura, 2006; Lee & Min, 2013), some others measure just recommendation (e.g. Lee, Yoon & Lee, 2007), and others consider separately both repurchase intention and word-of-mouth (e.g. Petrick, 2004; Jani & Han, 2013) or even three behavioural intentions: intention to revisit, word-of-mouth, and search for alternatives (e.g. Hutchinson et al., 2009). For the purpose of this study, all these attitudes are relevant as consumer outcomes, and consequently throughout this work the simpler term "loyalty" is used, that encompass all them; the empirical study uses a composite loyalty scale (namely Zeithaml et al., 2006).

Relationships among constructs: consensus and controversies

Based on a literature review on the study of the inter-variable approach in tourism value

research Table 1 is offered to describe the preferred relationships that the tourism literature has been studying since 2001, alongside with information on the setting (type of tourism product), the subjects (attendees, customers, travellers, keeping the original nomenclature from each work) and the country (when mentioned)¹. From this review, areas of agreement and controversy emerge from relationships among sacrifice², service quality, value, satisfaction and loyalty.

Consensus on the inter-variable approach to tourist consumer behaviour

Consensus in the tourism literature includes agreements over the relationships *quality-value*, *quality-satisfaction*, *value-loyalty* and *satisfaction-loyalty*.

The relationship quality-value

According to Zeithaml's (1988) pioneering work, followed by the works by Monroe (1990) and Bolton and Drew (1991), the link between quality and value is found in a very wide range of works, supporting quality being an input of value (e.g. Cronin et al., 2000; Brady et al., 2005), with the subsequent echo in tourism literature for different settings (different tourism products and across different samples) such as TV travel shopping by hotel guests (e.g. Chen & Tsai, 2007), students travel behaviour (e.g. Gallarza & Gil-Saura, 2006), hotel guests (e.g. Hu et al., 2009), cruise passengers (e.g. Petrick, 2004), airline travellers (e.g. Brodie et al. 2009), customers at restaurants (e.g. Lee et al., 2005) or attendees at festivals (e.g. Akhoondnejad, 2016). Some works measure effects on value of different quality dimensions such as the SERVQUAL ones (e.g. Etemad-Sajadi & Rizzuto, 2013; Lee et al., 2005³) or other quality dimensions (e.g. Hau-siu Chow et al., 2007; Kashyap & Bojanic, 2000; Tian-Cole et al., 2002), and others consider simultaneously different "qualities" and different "values" (e.g. Feng & Morrison, 2007). It is also true that some works test successfully a reversed link *value-quality* (e.g. Lee, Petrick & Crompton, 2007), or didn't confirm a link *quality-value* (e.g. Hutchinson et al., 2009), but in a broader sense, the link *service quality-value* is one of the main agreements to exist across different tourism settings as Table 1 evidences.

The relationship quality-satisfaction

As regards the relationship between quality and satisfaction, aside from lengthy conceptual debates on delimitations and overlaps in services literature, works that understand satisfaction as an antecedent of quality (e.g. Bolton & Drew, 1991) also exist among tourism-related studies (e.g. Tian-Cole et al., 2002), but are less numerous than those that advocate the contrary. Contrasted in successive studies by industries (e.g. Cronin et al., 2000) and countries (e.g. Brady et al., 2005), this link *quality-satisfaction* has also been widely tested among tourism services across years (e.g. Tam, 1999; Correia & Miranda, 2008; He & Song, 2009; Brodie et al., 2009; Saha & Theingi, 2009; Forgas-Coll et al., 2014), with very rare situations of non-confirmation (e.g. Lee, Petrick & Crompton, 2007; Etemad-Sajadi & Rizzuto, 2013).

The relationship value-loyalty and satisfaction-loyalty

Consideration of loyalty as a consequence of value and satisfaction is also a widespread reality (e.g. Lee, Yoon & Lee, 2007; Ryu et al., 2008; Chen, 2008; Hutchinson et al., 2009;). Although some works consider satisfaction as a mediator between value and loyalty, implying then that both service quality and value influence loyalty through satisfaction (e.g. He & Song 2009; Williams & Soutar, 2009), the proposal of direct relationships *value-loyalty* and *satisfaction-loyalty* (e.g. Oh, 1999; Tam, 1999; Hutchinson et al., 2009) is more common, pointing out for a consensus that both constructs (value and satisfaction) are antecedents of loyalty.

Controversies in the inter-variable approach to tourist consumer behaviour

Concerning the controversies or discrepancies found in the literature review, sometimes broadly debated and other times forgotten, the following relationships: *sacrifices-quality*, *value-satisfaction* and *quality-loyalty* are now revised.

The relationship sacrifices-quality

Literature review points out a consensus over the start of the effects chain, which has served as the basis for part of the present work. Implementing the study of the so-called "value trade-off" into structural models determines that value has two antecedents: quality and sacrifici-

Table 1. Links, type of products and subjects in structural models in tourism: a review of post-2000 studies

Works	Tourism Products	Subjects	Country	SAC- SQUAL	SAC- VAL	SAC- SAT	SQUAL- VAL	SQUAL- SAT	VAL- SAT	VAL- LOY	SQUAL- LOY	SAT- LOY
Oh (2000)	Hotels & Motels	Students (experimental design)	USA	x			x				x	
Kashvap & Bojanic (2000)	Hotel	Business & leisure tourists	USA		x				x			
Murphy et al. (2000)	City (Victoria)	Tourists	Canada		x						x	
Petrick et al. (2001)	Open air theatres	Visitors	USA								x	x
Babin & Kim (2001)	Destination	International students	USA & Hawaii		x				x			
Tian-Cole et al. (2002)	Wildlife refuge	Visitors	USA								x	x
Petrick & Backmam (2002a)	Golf resorts	Golf tourists	USA								x	x
Oh (2003)	Upscale hotels	Customers	USA								x	
Petrick (2004)	Cruise	Cruise Passengers	not specified				x			x		x
Lee et al. (2005)*	Restaurants	Families	Korea				x		x			
Duman & Matilla (2005)	Cruise	Cruise vacationers	USA						x	x		x
Um et al. (2006)	Destination	Pleasure tourists	Hong-Kong						x			x
Gallarza & Gil-Saura (2006)	Packaged tours	Students	Varied		x				x	x		x
Chen & Tsai (2007)	Destination	Visitors	Taiwan						x			x
Hau-siu Chow et al. (2007)	Full-service Restaurants	Customers	China								x	
Lee et al. (2007)	Festival	Attendees	USA						x	x		x
Ryu et al. (2008)	Quick casual restaurant	Customers	USA						x	x		x
Chen (2008)	Air travel	Air passengers	Taiwan						x	x		x
Chen & Tsai (2008)	TV travel products	Shoppers (staying in hotel)	Taiwan									
Correia & Miranda (2008)	Rural lodging	Tourists	Spain & Portugal								x	x
Ladhari (2009)	Hotel	Domestic tourists	Canada						x	x		x
Brodie et al. (2009)	Airline (online)	Airline travellers	Varied		x						x	x
Saha & Theinai (2009)	Low-cost air line	Passengers	Thailand									x
He & Song (2009)	Packaged Tour Service	Tourists	Hong-Kong						x		x	x
Hu et al. (2009)	Hotel	Guests	Mauritius						x	x		
Hutchinson et al. (2009)	Golf resorts	Golf travellers	USA						x	x		x
Williams & Soutar (2009)	Adventure tours	Passengers	Australia						x	x		x
Chen & Chen (2010)	Heritage sites	Tourists	Taiwan						x	x		x
Grappi & Montanari (2011)	Festival	Attendees	Italy									x
Ryu et al. (2012)	Chinese Restaurant	Customers	USA								x	
Kim et al. (2013)	Restaurants	Customers	South Korea						x			x
Etemad-Saiadi & Rizzuto (2013)	Restaurant	Students	China & Switzerland						x			x
Forgas-Coll et al. (2014)	Cruise	Cruise tourists	Mediterranean						x			x
Mokhtarian et al. (2015)	Hotel	Customers and employees	Iran			x						
Eid (2015)	Packaged tourism	Muslim tourism	Varied								x	x
Gallarza et al. (2015)	Hotel	Managers	Spain								x	x
Akhoodnejad (2016)	Handicraft Festival	Domestic tourists	Iran						x	x		x
Gallarza et al. (2016)	Hotel	Leisure tourists	Italy						x			x

ces, in keeping with the works by Zeithaml (1988) and Monroe (1990) initially, and subsequently the work by Cronin et al. (1997) and Sweeney et al. (1999). As stated earlier, in the tourism literature, many works have proposed quality as a positive antecedent of value (e.g. Lee et al., 2005; Gallarza & Gil-Saura, 2006; Chen & Tsai, 2007; Hu et al., 2009; Chen & Chen, 2010) but fewer have considered trade-off effects between quality and sacrifices (see Table 1).

Indeed, works that propose and simultaneously measure positive (quality or others) and negative (price or others) antecedents of value do exist (e.g. Oh 1999; 2000; Kashyap & Bojanic, 2000; Ainscough, 2005; Gallarza & Gil-Saura, 2006). Nevertheless, among them, very few works – in the review, just Oh (1999; 2000) and Ainscough (2005) – consider an extra link as trade-off when evaluating the antecedents of value, as a (negative) link between sacrifices (price) and perceived quality. This relationship is the first one considered of interest in the proposed model because, among other reasons, it is not commonly used (cf. Table 1) despite the theoretical consensus around the cohabitation of positive and negative antecedents of value.

The relationship *value-satisfaction*

A key aspect in the discussions over inter-variable approaches in structural models refers to the sense of the relationship between value and satisfaction. The most common proposal is that perceived value is an antecedent of satisfaction. However, some proposals in tourism literature also advocate the opposite (e.g. Lee, Petrick and Crompton, 2007), arguing even that “*the moderator role of perceived value between quality and satisfaction is debatable and has often been neglected*” (Chen & Tsai, 2007, p.1121). Obviously, this controversy has inherited previous debates on possible conceptual overlaps between value and satisfaction (Woodruff, 1997; Oliver, 1999). This conceptual debate is outside the scope of this work, but its empirical reflection is evident in the tourism literature, where alternative proposals for the chain of effects between *quality-value-satisfaction-loyalty* are constantly proposed (e.g. Petrick et al., 2001; Petrick & Backman,

2002a; 2002b; Petrick, 2004; Duman & Mattila, 2005; He & Song, 2009; Gallarza et al., 2013). Considering only the empirical works in the tourism literature that use rival or competing models, there is evidence in both directions: improved results when satisfaction leads to value and value to loyalty (e.g. Duman & Mattila, 2005) whereas other studies empirically find that value positively mediates between satisfaction and loyalty (e.g. He & Song, 2009; Gallarza et al., 2013). Because of this controversy, the relationship between value and satisfaction is the second focus of interest in this work.

The relationship *quality-loyalty*

The third and one of the major focuses on structural models in consumer behaviour corresponds to the effects (direct or indirect) of quality on loyalty (e.g. Bloemer et al., 1999; Cronin et al., 2000; Bei & Chiao, 2001; Brady et al., 2005). In tourism research, this *quality-loyalty* relationship has for long delivered very disparate results: in early works, the relationship was very significant in Murphy et al. (1997) on destinations but had very little significance in Kashyap and Bojanic (2000) on hotels. The relationship has continued to interest tourism researchers across years in structural models, but obtaining many times non-empirical support, as in Um et al. (2006) on destination, Hu et al. (2009) on hotels, Chen & Chen (2010) for heritage places and Akhoondnejad (2016) for festivals. But the reverse can also be found: a revised model with an additional *service quality-loyalty* link (e.g. Gallarza & Gil-Saura, 2006), or competing models with better results with simultaneous direct effects of satisfaction, value and service quality on behavioural intentions (e.g. Petrick, 2004; Gallarza et al., 2015); these latter results are coherent with the “comprehensive model” from Brady et al. (2005). Considering these controverted findings, this link *quality-loyalty* is therefore considered the third focus of interest in this work.

Model proposals

The possible structure of links in causal models built upon these agreements and disagreements can be obviously very varied. Although the consensus extends to the beginning (service quality) and end of the chain

(loyalty), the literature is not unanimous over the issue of whether this chain is one of single effects (one by one) or whether there may be additional links between constructs. A possible approach is to regard satisfaction as a core element in the relationship network that receives effects simultaneously from service quality and value (e.g. Hu et al., 2009). In the study by Cronin et al. (2000) which tests competing models on the same data, this type of approach is called "Satisfaction Model" in contrast to the so-called "Value Model" where value is a central component and precedes both satisfaction and loyalty. The final model chosen by these authors –considered as "comprehensive and complex" (Cronin et al., 2000, p.210), also replicated in Brady et al. (2005)– contemplates dual effects: quality over value and satisfaction, value over satisfaction and loyalty and, both satisfaction and quality over loyalty.

In an alternative way of shaping these relationships, taking into account the two last controversies jointly (that is, the *value-satisfaction* link and the indirect relationship of quality to loyalty through value and satisfaction) it can be understood that there is a *quality-value-satisfaction-loyalty* chain of effects, where value and satisfaction are interrelated and central constructs, and where service quality affects loyalty just indirectly through both these central constructs. This pattern of linkages in three steps (*quality/sacrifice-value/satisfaction-loyalty*) is in keeping with the necessary cognitive-affective order of consumer evaluations as postulated by authors like Oliver (1997) and Bagozzi (1992). To help visualise the differences and/or endorsements proposed in this work of the relationships between sacrifices, quality, value, satisfaction and loyalty, Figures 1a and 1b are introduced, representing respectively the model chosen

Figure 1a. Cronin et al. (2000) and Brady et al. (2005)'s model

Figure 1b. Proposed model

from the literature (Cronin et al., 2000; Brady et al., 2005) and the proposed model.

Empirical study

Objectives and hypotheses testing

Taking as reference previous agreements and controversies on relationships between constructs, this paper proposes to compare now different patterns of relationships between sacrifices, quality, value, satisfaction and loyalty that explain tourism consumer behaviour. Therefore, in this work two models of causal relationships between these variables are proposed: one known as “*Research Model*” in Cronin et al. (2000), and also “*Comprehensive Model*” in Brady et al. (2005) (Figure 1a) and the proposed model (Figure 1b) with a different set of links to see which model best fits the data from an empirical study of 400 hotel guests.

The empirical work has, methodologically, an exploratory aim, by seeking to introduce the use of partial correlations as a technique that permits validation of the best relationship structure, and subsequently a confirmatory aim, by introducing the estimation of both models and testing the evidence that the proposed model provides a better fit.

Based on literature review where three main interests on three specific relationships were identified, the following three hypotheses are proposed, seeking to a) endorse some of the consensus (the relationship *value-satisfaction*), b) introduce a new relationship (*sacrifices-quality*) and c) reject one of Cronin et al. (2000)’s contributions (the relationship *quality-loyalty*).

Firstly, in keeping with the above literature on value as a trade-off, and in search of denying other models that do not contemplate this link such as Cronin et al. (2000), Brady et al. (2005), and Brodie et al. (2009) for tourism services, first hypothesis posts that:

H₁ According to the trade-off literature on value, there is a sacrifices-service quality relationship, and this relationship should be negative

Secondly, the works by Cronin et al. (2000) and Brady et al. (2005) discuss the direction of the

relationship between value and satisfaction, contrasting the “Value Model” with the “Comprehensive Model”, concluding on the supremacy of the *value-satisfaction* link. In this study, given the controversy generated in the literature on this issue, *H₂* seeks to endorse this result, finding evidence of this link in both models:

H₂ As intermediate constructs, there is a relationship between value and satisfaction, where the former affects the latter

Finally, and with the intention of refuting the core contributions from Cronin et al. (2000) and Brady et al. (2005) in the proposed model, the study seeks for validation of just indirect relationship between quality and loyalty through the intermediate variables (value and satisfaction). In other words, the study seeks to find evidence that contradicts the theory in both the above works, which advocate the simultaneous effects of quality, value and satisfaction on loyalty. And therefore, the following hypothesis is posted.

H₃ There is no direct relationship between quality and loyalty these variables being related just through value and satisfaction

Measurement instrument and sample

Considering that the focus is not on the scales (intra-variable approach) but on the relationship between variables (inter-variable approach), for building our questionnaire, all items for measuring constructs were extracted from previous works. Service quality scale (9 indicators) was extracted from Cronin et al. (2000). Perceived sacrifices scale (8 indicators) comes from Cronin et al. (1997); it is a more comprehensive scale than Cronin et al. (2000)’s one, as it contemplates monetary and non-monetary price and perceived risk. The value scale (3 indicators) was used in Gallarza and Gil-Saura (2006) and Hu et al. (2009), the first two indicators coming from Cronin et al. (2000), and the third concerning a trade-off as a balance between benefits and sacrifices. Satisfaction is measured with a single indicator following the works by Kattara et al. (2008). Finally, loyalty scale considers the first three levels of the behavioural intentions scale from Zeithaml et al. (1996), that is, word-of-mouth

intention (3 indicators), intention to return (2 indicators) and intention to change (2 indicators). All items were expressed positively on a five-point Likert scale. The questionnaire was completed with information on demographic characteristics of respondents.

Regarding the sample and setting, the study was conducted in Spain. With 75 million tourists (Fernández, 2017) Spain is the world's third most popular tourist destination, after France and the United States (UNWTO, 2016). The information was collected from a sample of hotels extracted from the directory Visiting Spain (<http://www.visitingSpain.es>) and the economic information database SABI (Iberian Balance Sheet Analysis System). SABI database is generated by the private firm INFORMA and it contains financial and economic information on major Spanish and Portuguese firms from 1990. The hotels were located on the basis of the Spanish classification of economic activities NACE (National Classification of Economic Activities) and TEA (Tax on Economic Activities) codes. Valencia (located in the Mediterranean coast) and its metropolitan area were chosen for the study. According to the Spanish Institute of Statistics (INE, 2015), this is one of the three

largest cities in Spain in terms of population and is a reference for the hospitality industry. Only four and five stars hotels were selected. After obtaining permission from the hotel, guests were intercepted in the reception area at the interviewer's discretion (purposive sampling with stratification by age and gender according to Teddlie and Yu (2007)). An initial pilot study was conducted with 20 guests in order to detect errors and ensure the respondents understood the questions. Once the final questionnaire was designed, data were collected and a total of 400 valid surveys were obtained from 19 different hotels in Valencia (Spain). Respondents distribution by personal characteristics and consumer related variables is shown in Table 2.

Reliability and validity of measurement scales

Before estimating the causal models, scale psychometric properties were tested sequentially: (a) analysis of Cronbach's alpha (including the sequential elimination of items); (b) estimation of composed reliability (CR) and average variance extracted (AVE) (Table 3); (c) item-to-scale correlation analysis (Table 4) to ensure convergent validity and (d) analysis of simple and partial correlations between latent

Table 2. Sample Profile

Gender			Job		
Men	237	59.3%	Self-employed or liberal prof	91	23.2%
Women	163	40.7%	Non civil servant employee	135	34.4%
Level of education			Employed	49	12.5%
Primary	25	6.3%	Civil Servant	43	11.0%
Secondary	64	16.1%	Housewife	48	12.2%
Vocational training	78	19.6%	Student	14	3.6%
University	206	51.8%	Pensioner	12	3.1%
PhD	25	6.3%	Nationality		
Type of trip			National	316	79.0%
Holidays (leisure)	237	61.2%	Foreign	84	21.0%
Business/Work	143	37.0%	Age		
Others	7	1.8%	18 to 25	13	3.3%
Frequency of stay			26 to 35	85	21.3%
Once a year or less	201	52.1%	36 to 45	136	34.0%
2-4 times a year	123	31.9%	46 to 55	116	29.0%
More than 4 times a year	62	16.1%	56 to 65	41	10.3%
			Over 65	9	2.3%
<i>N</i> = 400					

variables (Table 5) to ensure respectively discriminant validity and the ability to explore relationships for an improved model.

Before these analyses, the missing data were imputed following a method based on expected value, conditioning value to the remaining variables in a small space using independent latent variables obtained from Principal Components Analysis; the method is known as TSR (Trimmed Scores Regression) (Arteaga & Ferrer, 2009; Folch et al., 2015).

After the first reliability analysis, it was decided to eliminate four indicators because increments of Cronbach's alpha were obtained (Nunnally and Bernstein, 1995), the first indicator of sacrifices scale, second in value scale and last two in loyalty scale. The following calculations of Composed Reliability (CR) and Average Variance Extracted (AVE) (Table 3) reinforce the reliability of the five scales (Fornell & Larcker, 1981; Wets, Linn and Joreskog, 1974).

Table 3. *Scale reliability (Cronbach's alpha, Composed Reliability, Average Variance Extracted)*

	Alpha	CR	AVE
S Quality	0.9326	0.9437	0.6513
Sacrifices	0.9415	0.9524	0.7412
Value	0.8372	0.9247	0.8600
Satisfaction	1.0000	1.0000	1.0000
Loyalty	0.8733	0.9080	0.6638

In a further step in the sequence followed, Table 4 shows the correlations of each indicator with its construct (loadings) and with the remaining constructs (crossed loadings). It has been verified that all the indicators load more on their own construct than on the others. This analysis confirms the convergent validity of the scales.

Finally, discriminant validity was analysed using Sweeney and Soutar's (2001) criterion, that is, the correlation between latent variables must be significantly below one. All the correlations satisfy this criterion, as Table 5

shows, with simple correlations in the lower part of the matrix, partial correlations in the upper one, and the square root of the AVE on the diagonal.

All the correlations comply with the criterion, with the highest correlations between satisfaction and loyalty (0.6298 simple correlation and 0.5218 partial correlation) and between value and satisfaction (0.4533 simple correlation but with a considerably lower partial correlation: 0.1587); followed by loyalty and value which are also strongly related (0.5151 in simple and 0.3383 in partial). In addition, as needed, the square root of AVE (on the diagonal) is higher than the simple correlations for all variables, implying that each latent variable is more related with its items that with the other latent variables (Fornell & Larcker, 1981).

For testing the hypotheses, we explored differences in the models with analysis of simple and partial correlations: this analysis anticipates that the relations between some constructs in Cronin et al. (2000) and Brady et al. (2005)'s model are weak (between quality and loyalty) and that in the light of Table 5, an additional relationship can be suggested (between sacrifices and quality).

Analysis of the partial correlations between pairs is now proposed, among the five constructs, eliminating the effect of each of the other three constructs (Table 6). This analysis, prior to estimating the two models, focuses on the pairs of variables corresponding to the three hypotheses; that is the relationships *sacrifices-quality* (H_1), *value-satisfaction* (H_2) and non-relationship *quality-loyalty* (H_3).

First, the simple correlation between sacrifices and quality is -0.1322 whereas the partial correlation between the same constructs, eliminating the effect of satisfaction is equal to -0.1595. A link can therefore be intuited between sacrifices and quality (as H_1 postulates), insofar as the partial correlation is not much affected by the other variables. This correlation being negative, the link is presumed to be negative, in correspondence with the trade-off conceptualization. Second, the correlation between value and satisfaction

Table 4. Convergent Validity of the scales (item-construct correlations)

	SQUAL	SAC	VAL	SAT	LOY
SQUAL1: Employees provide service reliably, consistently, and dependably	0.8546	-0.1244	0.1771	0.1754	0.1612
SQUAL2: Employees are willing and able to provide service in a timely manner	0.7197	-0.0748	0.2044	0.1761	0.1229
SQUAL3: Employees are competent (i.e., knowledgeable and skilful)	0.8246	-0.0921	0.1891	0.1864	0.1057
SQUAL4: Employees are approachable and easy to contact	0.8114	-0.0863	0.1654	0.1803	0.1139
SQUAL5: Employees are courteous, polite, and respectful	0.8503	-0.1100	0.1679	0.1868	0.1347
SQUAL6: Employees listen to me and speak in a language that I can understand	0.8285	-0.1313	0.1711	0.1533	0.0946
SQUAL7: Employees are trustworthy, believable, and honest	0.8213	-0.1168	0.1249	0.1472	0.0876
SQUAL8: Employees make the effort to understand my needs	0.7995	-0.0861	0.1486	0.1342	0.1259
SQUAL9: The physical facilities and employees are neat and clean	0.7429	-0.1369	0.0694	0.0648	-0.0015
SAC2: The effort I must make to receive the services offered is great (effort)	-0.0228	0.8165	0.1238	0.0565	-0.0415
SAC3: The time required to be able to stay in this hotel is substantial (time)	-0.0748	0.8068	0.1217	0.0772	-0.0033
SAC4: The financial risk associated with this experience is considerable (financial risk)	0.0073	0.8604	0.1265	0.0876	0.0374
SAC5: The personal (physical) risk associated with this experience is considerable (physical risk)	-0.1194	0.8710	0.1180	0.1020	0.0493
SAC6: The risk of receiving poor service performance in this experience is big (performance risk)	-0.2003	0.8896	0.1057	0.1199	0.0368
SAC7: The risk that I will embarrassed socially in this hotel is substantial (social risk)	-0.1684	0.8916	0.1188	0.1325	0.0906
SAC8: The risk that I will feel uncomfortable psychologically in this hotel is high (psychological risk)	-0.2041	0.8865	0.0924	0.1353	0.1288
VAL1: Overall, the value of this experience to me has been	0.2050	0.0980	0.9273	0.4262	0.4729
VAL3: Comparing the benefits I got and the sacrifices I made I consider it as being	0.1576	0.1496	0.9273	0.4146	0.4825
SAT1: My overall satisfaction with this hotel is (from 1 to 10)	0.1943	0.1190	0.4533	1.0000	0.6298
LOY1: Say positive things about this hotel to other people	0.1590	-0.0084	0.4213	0.5347	0.8064
LOY2: Recommend this hotel to someone who seeks your advice	0.0449	0.0933	0.4074	0.5520	0.8250
LOY3: Encourage friends and relatives to do business with this hotel	0.1390	0.0052	0.4631	0.4702	0.7888
LOY4: Consider this hotel your first choice to buy hospitality services	0.1753	0.0430	0.4210	0.5079	0.8312
LOY5: Do more business with this hotel in the next few years	0.0189	0.0734	0.3878	0.4998	0.8215

Table 5. Analysis of correlations: simple (lower part) and partial (upper part)

	SQUAL	SAC	VAL	SAT	LOY
SQUAL	0.8070	-0.1750	0.1457	0.1362	-0.0427
SAC	-0.1322	0.8609	0.1288	0.1115	-0.0707
VAL	0.1955	0.1335	0.9273	0.1587	0.3383
SAT	0.1943	0.1190	0.4533	1.0000	0.5218
LOY	0.1314	0.0513	0.5151	0.6298	0.8147

Table 6. Partial correlations by pairs, eliminating the effects of the remaining variables (sacrifices-quality, value-satisfaction and quality-loyalty)

				Blocking the effect of		
			r	VAL	SAT	LOY
H ₁	SAC	SQUAL	-0.1322	-0.1629	-0.1595	-0.1404
H ₂	VAL	SAT	0.4533	SQUAL	SAC	LOY
				0.4317	0.4445	0.1936
H ₃	SQUAL	LOY	0.1314	SAC	VAL	SAT
				0.1396	0.0365	0.0119

(relationship depicted in H₂) is only affected by loyalty which, as is known, in both models comes after value and satisfaction, and therefore consideration of this link is plausible in the proposed model. Third, the link between quality and loyalty (related to H₃) in the light of Table 6, can be called into question because its correlation vanishes drastically if deleting the effect of value or satisfaction. That is, that this *quality-loyalty* correlation is due to these two variables (value and satisfaction) and not to a direct relationship. In sum, in accordance to the second objective (methodological), the exploration of partial correlations shows the need to consider the testing of the third hypothesis of the non-relationship between quality and loyalty (H₃), alongside with the additional link between sacrifices and quality (H₁) and the relationship between value and satisfaction (H₂) existing in both models in the literature and expected to be endorsed in this study.

Model estimation results

The technique used to estimate the models is PLS-Partial Least Squares (Wold, 1982; 1985). Stone and Brooks (1990) show that PLS can be considered as a two-stage process where the set formed by *K* explanatory variables becomes first a new set of *A* (*A*<*K*) latent

variables that maximise covariance with the response variable, with the restriction of being orthogonal to each other. Geladi (1988), Geladi and Kowalski (1986) and Hair et al. (2014) commented on its suitability in business and marketing research, for instance, for avoiding co-linearity problems like the non-assumption of the hypothesis on variable distribution, which makes it a good alternative for the exploratory purpose to covariance based methods as LISREL or EQS.

The present study uses the Multi Block Partial Least Squares Path Modelling (MBPSLPM) algorithm implemented in MatLab which offers better results than the classical PLS (factors with greater explanatory ability and coefficients with less standard error (Arteaga et al., 2010). The following tables and figures provide information on the different links proposed in the two models (Table 7a and 7b, with their associated confidence interval and p-value). The significance of the coefficients in both models was studied using the bootstrap method (Efrom & Tibshirani, 1993), taking 1000 samples of 400 observations with replacement, over 400 individuals in the initial data.

Comparison of both structural models points to validation of all hypotheses. Firstly, the

Table 7a. Paths estimation for Cronin et al. (2000) and Brady et al. (2005)'s models

From	To	Coef	IC95%		p-value
Sacrifice	Value	0.1619	0.0883	0.2583	0.0002
Quality	Value	0.2246	0.1372	0.3152	<0.0001
Quality	Satisfaction	0.1151	0.0340	0.1978	0.0054
Quality	Loyalty	-0.0197	-0.0938	0.0518	0.6076
Value	Satisfaction	0.4297	0.3359	0.5050	<0.0001
Value	Loyalty	0.2919	0.2144	0.3691	<0.0001
Satisfaction	Loyalty	0.5022	0.4330	0.5692	<0.0001

Table 7b. Paths estimation for the proposed model

From	To	Coef	IC95%		p-value
Sacrifice	Quality	-0.1567	-0.2661	-0.0106	0.0136
Sacrifice	Value	0.1643	0.0808	0.2587	0.0002
Quality	Value	0.2272	0.1403	0.3214	<0.0001
Quality	Satisfaction	0.1128	0.0269	0.1972	0.0105
Value	Satisfaction	0.4306	0.3416	0.5094	<0.0001
Value	Loyalty	0.2892	0.2098	0.3680	<0.0001
Satisfaction	Loyalty	0.4994	0.4289	0.5692	<0.0001

Figure 2a. Estimation of Cronin et al. (2000) and Brady et al. (2005)'s model **Figure 2b.** Estimation of the proposed model

proposed model ratifies a significant link between sacrifices and quality (-0.16) as H_1 was proposing. Furthermore, this link is negative, suggesting approximations to the antecedents of value in trade-off, as the negative correlation between sacrifices and quality (cf. Table 5) already anticipated.

Secondly, the existence of a link between value and satisfaction in both models exists, as expected (H_2). And thirdly, in the estimation of first model, the link between quality and loyalty is not significant and therefore can be rejected (as expected), as third hypothesis (H_3) stated. As a major result, the direct relationship (and

simultaneous with value and satisfaction) between quality and loyalty, postulated in the models in Cronin et al. (2000) and Brady et al. (2005) is not confirmed in this study. The sequence of effects between quality and loyalty includes value and satisfaction. Last, the PLS technique does not provide global goodness of fit measurements for the model as its aim is prediction rather than fit; but it is possible to evaluate the regression coefficients for each endogenous variable, being similar for both models (see R^2 in both Figures 2a and 2b and Table 8a and 8b with the confidence intervals).

Table 8a. Results of estimating the regression coefficients in the Model in Cronin et al. (2000) and Brady et al. (2005)

	R^2	Confidence intervals 95%	
Value	6.81%	3.31%	12.52%
Satisfaction	21.82%	14.13%	30.22%
Loyalty	46.43%	38.32%	54.84%

Table 8b. Results of estimating the regression coefficients for the Proposed Model

	R^2	Confidence intervals 95%	
Quality	2.46%	0.06%	7.08%
Value	6.69%	2.86%	12.51%
Satisfaction	21.77%	14.33%	30.45%
Loyalty	46.40%	37.96%	54.82%

Discussion

As a whole, results show lower links for the initial constructs than for the final ones. Indeed, both sacrifices and quality are significant but weak antecedents of value (between 0.16 and 0.23) in line with other works (e.g. Kashyap & Bojanic, 2000; Gallarza & Gil-Saura, 2006). Quality is a stronger antecedent of value than sacrifices (0.23 against 0.16 in the proposed model). Furthermore, the negative relationship between sacrifices and quality – not contemplated in Cronin et al. (2000) neither in Brady et al. (2005) – has been fully confirmed (p -value=0.036). Coming back to theory concerning antecedents of value, this result confirms the well-known conceptualisation of value as a trade-off between sacrifices and benefits. However, sacrifices have a positive effect on value in both models (0.16 in both cases), which in some sense denies this conceptualization. Discussion of this result is

difficult, as fewer works are interested in these first links (see Table 1), but opposite results to ours exist: positive and not negative direct effect of price on service quality and negative effect of price on value (e.g. Ainscough, 2005).

For the so-called “intermediary constructs” (Lee, Petrick & Crompton, 2007, p.402), satisfaction is the best direct antecedent of loyalty (path of 0.50 in both models), stronger than value (0.29 also in both models). Similar trend (links *satisfaction-loyalty* above 0.60) is also viewed in Grappi and Montanari (2011) for festivals, in Kim et al. (2011) for food events, in Ryu et al. (2012) for restaurants, and in Ladhari (2009) for hotels, although same link was not supported in Chen and Tsai (2008) for TV travel product shopping. And, the *value-satisfaction* link is also important in both models (0.43) as it was also shown in other works reviewed in Table 1 (e.g. Gallarza & Gil-Saura, 2006; Ryu et al., 2008; Hutchinson et al., 2009; Akhoondnejad, 2016).

Last but not least, the direct link *quality-loyalty* is not significant (p -value= 0.6076), denying direct, simultaneous and positive relationships between quality, value and satisfaction on loyalty. As it is known, other works in tourism services, as ours, propose a *quality-loyalty* link that is finally not confirmed (e.g. Chen & Tsai, 2007; Chen & Chen, 2010; Hu et al., 2009; Um et al., 2006), which in view of the comparative analysis is a correct result.

In general, results support the trends of previous works in tourism as referred to intensities of the links, but adds knowledge as it challenges some of previous approaches: a) it confirms one link that is the less studied (*sacrifices-service quality*), b) it adds clarity to the controversy on the sense of the link between value and satisfaction, and c) it denies one of the links which is, as Table 1 evidences, among the preferred in previous literature (*service quality-loyalty*).

If considering contrasting of the three hypotheses of this study together (link *sacrifices-quality*; link *value-satisfaction*, and rejection of direct link *quality-loyalty*) the results point out to favour models with a chain of effects in three steps *sacrifices/quality-*

value/satisfaction-loyalty. This work has therefore endorsed in the same study both the proposals that advocated for simultaneous direct and indirect (through satisfaction) effects of value on loyalty (e.g. Lee et al., 2005; Williams & Soutar, 2009), and only indirect effects of service quality on loyalty, through both value and satisfaction (e.g. Chen & Chen, 2010).

Conclusions

If there is one area in tourism research that has been prominent and fecund in the last decade, this is undoubtedly the so-called "inter-variable approach" (Gallarza & Gil-Saura, 2006, p.438) interested in relationships between key constructs: sacrifices, quality, value, satisfaction and loyalty. However, in spite of the numerous and varied proposals (reviewed in Table 1), there are unbalanced and contrasted results. In one hand, it is noticeable as Table 1 evidences, that first constructs (sacrifice and quality) have been less studied than final ones (satisfaction and loyalty). On the other hand, contrasted results exist related to some of the links. More precisely, the review has found four consensus (links *quality-value*, *quality-satisfaction*, *value-loyalty* and *satisfaction-loyalty*) and three controversies (the negative link between sacrifices and quality, the sense of the link between value and satisfaction and the direct link between quality and loyalty). Bearing this reality in mind, and in order to explore the order and intensity of the links between these variables, this work has contrasted, on a sample of 400 hotel guests, with PLS, two different causal models. A proposed model has been tested comparatively against Cronin et al. (2000)'s "comprehensive and complex" one (also validated in the subsequent work by Brady et al. (2005) and by Petrick (2004) in tourism services). The results suggest that the proposed model better fits the data collected in this context. The proposed model endorses the link value-satisfaction, proposes an additional negative link between sacrifices and quality, and rejects the existence of a direct relationship between quality and loyalty. Findings of this work therefore advocates a clear chain of effects in three steps: sacrifices and quality, value and satisfaction, and finally loyalty, where value affects loyalty both directly and indirectly

through satisfaction, and where service quality influences loyalty just indirectly through value and satisfaction.

This paper provides contributions in two areas. Firstly, at the level of content, it reviews and identifies, within the long line of inter-variable research in the tourism literature (cf. Table 1), agreements and discrepancies. Furthermore, the fact of contrasting two different models, providing evidence of a better fit in the proposed model, furthers the understanding of the difficult networks of relationships that characterise models of consumer behaviour in tourism literature advocating, for the data set selected here, the supremacy of the proposals of a chain *quality-value-satisfaction-loyalty* over proposals of direct simultaneous effects of quality, value and satisfaction on loyalty.

Secondly, this work suggests a preliminary easy step in the methodology for researchers interested in structural models: analysis of partial correlations is proposed as an exploratory method for anticipating the best relationship structure, as it is possible to intuit that the relationship between two constructs does not exist without the mediation of other constructs from the model. In this case, through the analysis of partial correlations, findings show that the relationship of quality to loyalty is due exclusively to the shared effect with value and satisfaction.

As with any research, limitations are noted. As a first limitation of this study, it should be acknowledged that the two models are tested on a purposive sample, and on just one tourism service experience (hotel). Future replicas with a random sampling method, in different (tourism) services, are needed to endorse widely the proposed model, as some links, as shown in the discussion, have multifaceted results in previous works in the inter-variable approach. Second, although this work advocates a classical pattern in the tourism literature such as *quality-value-satisfaction-loyalty*, it does not examine the indirect effects in both models. In this sense, further research should provide the decomposition of the total effects for both structures. Third, the conceptualisation of value as a trade-off between sacrifices and benefits is just partially

endorsed, as the link *sacrifices-quality* is negative as expected, but the link *sacrifices-value* is positive in both models. As stated in the introduction on quotations by Gallarza and Gil-Saura (2008, p.13) and Boksberger and Melsen (2011, p.233), controversies appear in empirical studies testing relationships among consumer behaviour variables (here sacrifices and quality), challenging some well stated theory statements (here, the value trade-off, which here is just partially confirmed).

Other future lines could lie in the interest in increasing the chain of effects to other variables that complement loyalty, such as the willingness to pay more or intention to change, which has been rejected in the scales depuration process. Similarly, the beginning of the chain could also contemplate more variables, such as different value dimensions (social, emotional and functional) as in other works (e.g. Forgas-Coll et al., 2014; Eid, 2015; Akhoondnejad, 2016; Gallarza et al. 2015; 2016) combining thus inter- and an intra-variable approaches. Considerations of alternative predictors in consumer behaviour models, as both positive and negative antecedents of value, may help in understanding when the value trade-off is more balanced (or the antecedents of value stronger). In this sense, multi-table analysis conducted on comparative proposals such as ours would add knowledge for better tourism segmentation strategies. All these further excursions on comparative studies on structural models could provide fuller understanding of these rich but complex networks of relationships that have been and continue to be of intense interest for tourism researchers.

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Endnotes:

¹ Table 1 considers works that measure at least two of the referred links.

² In the revised works, the main sacrifice is price, although some authors do consider also risk (e.g. Babin & Kim, 2001 measured as

“safety”), effort spent (e.g. Gallarza & Gil-Saura, 2006) and taxes and time (e.g. Brodie et al., 2009).

³ This study measures 5 dimensions of quality as independent endogenous variables, and find significant link with value for just three of them, and with satisfaction in just one of them.

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