

Service value revisited: Specifying a higher-order, formative measure[☆]

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Abstract

Recent marketing literature pays particular attention to customer value because of the potential impact on customer behavior and, ultimately, firm performance. Whereas some studies conceptualize customer value in a unidimensional manner, more recent approaches take a multidimensional approach, generally conceptualizing value as composed of various benefits and sacrifices. However, nearly all of these studies consider value components in a reflective manner, which is not only problematic but in many cases conceptually incorrect. In addition, recent customer value research includes service components to define and operationalize the construct. This study suggests that customer value in service contexts, or *service value*, represents a higher-order, formative construct with benefit and sacrifice components. Specifically, the authors propose a formative model of service value with four components: service quality, service equity, confidence benefits, and perceived sacrifice. A multiple-industry study substantiates the contention that this higher-order, formative approach best models value. The results theoretically and empirically support the conceptualization of service value with formative components, and the measure is robust and works well across multiple service contexts.

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1. Introduction

Companies recognize the strategic relevance of maintaining a solid base of loyal customers for survival, growth, and financial performance. Scholars and successful firms highlight the delivery of customer value as a key strategy for achieving customer loyalty and reducing defection rates (Parasuraman and Grewal, 2000). In this sense, customer value creation represents a new paradigm that argues that creating and sustaining a competitive advantage requires a more comprehensive approach than a simple focus on service quality or customer satisfaction (Vargo and Lusch, 2004; Woodruff, 1997). As Gale (1997, p. 19) notes, “the customer value paradigm is newer, includes many of the elements of the customer satisfaction

paradigm, plus additional features, and is more widely adopted,” and as Woodruff (1997, p. 140) suggests, “the issue does not seem to be whether an organization should compete on customer value delivery, but rather how it should do it.” Similarly, Holbrook (1994, p. 22) points out that “customer value is the fundamental basis for all marketing activity.” However, customer value research is underdeveloped to the extent that the definition is confusing (Flint et al., 2002).

Customer value leads to competitive advantage (Woodruff, 1997), and value typically appears as a trade-off between what customers receive and what they give up (e.g., Monroe, 1990; Zeithaml, 1988). Zeithaml’s (1988, p. 14) definition of product value, “consumers’ overall assessment of the utility of a product based on perceptions of what is received and what is given,” forms the basis for most studies that conceptualize the construct, many of which employ a unidimensional approach and operationalize the construct directly through single-item (e.g., Bolton and Drew, 1991; Cronin et al., 1997) or multiple-item (e.g., Teas and Agarwal, 2000) measures. However, this method ignores the conceptual richness of the construct, which is too

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complex to be operationalized as unidimensional (Lam et al., 2004; Wang et al., 2004). Others use a multidimensional approach to capture these complexities and consider that customer value consists of many distinct components (e.g., de Ruyter et al., 1997; Petrick 2002).

Only recent marketing literature extends the customer value concept to the context of service delivery. Similar to those of consumer goods, nearly every study of customer value in service contexts uses Zeithaml's (1988) framework—or trade-off model (e.g., Flint et al., 2002; Heinonen, 2004; Payne and Holt, 2001; Tam, 2004)—as a starting point to determine which components to include. Most conceptualizations include benefits, or what customers receive from the exchange, and sacrifices, or what customers give up (Lapierre, 2000).

However, with one exception (Lin et al., 2005), studies that incorporate a multidimensional conceptualization of customer value in service contexts—or *service value*—use a reflective formulation, an approach that is difficult to defend conceptually. With reflective measures, researchers expect all components to covary with one another (Jarvis et al., 2003), but the benefit components of value may not correlate with the sacrifice components. To illustrate, a bank may reduce a customer's perceived sacrifice by opening a neighborhood branch, which enables the customer to save time or effort when using the bank's services, but the benefits of the bank for the customer remain unchanged. Thus, models using reflective components may misspecify the customer value construct, which can cause biased estimates of the structural relationships between constructs and undermine the validity of the statistical conclusions (MacKenzie et al., 2005). That is, findings from studies that conceptualize customer value with reflective components require careful consideration due to the implications of a measurement mistake in terms of content, parsimony, and criterion validity (Diamantopoulos and Siguaw, 2006).

Most examinations of service value, particularly research that uses a trade-off model specified with reflective components, fail to conceptualize the construct correctly. Instead, service value represents a higher-order, formative construct that contains benefits and sacrifices. Specifically, this research suggests a formative model of service value with four components—service quality, service equity, confidence benefits, and perceived sacrifice—and empirically assesses this conceptualization in a multiple-industry setting. In doing so, this study contributes to existing literature by (1) identifying multiple, theoretically defensible components; (2) conceptualizing the service value construct as composed of formative components; (3) providing evidence that validates the model and suggests such a conceptualization is generalizable across contexts; and (4) presenting more reliable findings than those of previous studies that use reflective conceptualizations of the construct.

2. Literature review

2.1. Previous conceptualizations of customer value

Early research on customer value relies on pricing literature (Dodds and Monroe, 1985), which uses perceived quality and

sacrifice as the main components to determine the perceived value of a product. (For an extensive review of value in marketing literature, see Payne and Holt, 2001.) The widely held view indicates that “buyers’ perceptions of value represent a trade-off between the quality or benefits they perceive in the product relative to the sacrifice they perceive by paying the price” (Monroe, 1990, p. 46). In empirical assessments of Zeithaml's (1988) customer value model for a variety of product categories and various attribute cues (e.g., Dodds et al., 1991; Grewal et al., 1998; Sweeney and Soutar, 2001; Teas and Agarwal, 2000; Yang and Peterson, 2004), customer value appears unidimensional, and different product attributes (e.g., country of origin, perceived risk, price, perceived quality) relate to perceived value and behavioral intentions.

Other scholars conceptualize customer value as multidimensional. Table 1 lists many studies that have adopted Zeithaml's (1988) approach (i.e., trade-off model) by arguing that customer value consists of various benefits and sacrifices (e.g., Lapierre, 2000; Lin et al., 2005). Other frameworks include Woodruff's (1997, p. 142), which proposes that customer value “incorporates both desired and received value and emphasizes that value stems from customers’ learned perceptions, preferences, and evaluations.” This view depicts customer value as a hierarchy or means–end chain that begins with customers thinking about desired attributes and performance and builds to customers’ goal-directed and purposeful behavior or their satisfaction with the received value; only a handful of studies follow this approach, including those by Flint et al. (2002) and Overby et al. (2004). Sheth et al. (1991) propose five dimensions of customer value—epistemic, social, functional, emotional, and conditional—and their study serves as a framework for research conducted by de Ruyter et al. (1997) and Sweeney and Soutar (2001). Finally, Holbrook's (1994) multidimensional conceptualization suggests value not only serves as the basis for a purchase decision but also results from a particular consumption experience. He proposes a value typology based on three criteria—extrinsic/intrinsic value, reactive/passive value, and internal/external orientation—that other researchers test (e.g., Mathwick et al., 2001). However, of these alternative conceptualizations of value, the most commonly used framework remains Zeithaml's (1988) trade-off model. This study therefore adopts her approach and conceptualizes customer value in service contexts as consisting of various benefits and sacrifices.

2.2. Service value

The evolution of customer value research follows the recent call for a greater service focus in marketing research (Vargo and Lusch, 2004). Therefore, recent customer value research centers on service offerings, and among studies that take a multidimensional approach, most adopt Zeithaml's (1988) approach and consider various benefits and sacrifices in customer value (e.g., Lapierre, 2000; Sweeney and Soutar, 2001; Wang et al., 2004). However, nearly all of them conceptualize service value in a reflective manner, which is problematic for several reasons. First, in reflective models, the causality direction moves from the construct to the items (or components), whereas in models

Table 1
Recent multidimensional approaches used to examine customer value empirically

Author(s)/context	Type of components	Components of customer value (# items)	
		Benefit components	Sacrifice components
de Ruyter et al. (1997) Hotel service	Reflective	Emotional value (5), practical value (5), logical value (5)	
Grewal et al. (1998) Bicycles	Reflective	Perceived acquisition value (9)	Perceived transaction value (3)
Lapierre (2000) ICE (information, communication, entertainment), distribution, and finance services	Reflective	Alternative solutions (3), product quality (4), product customization (4), responsiveness (3), flexibility (4), reliability (5), technical competence (5), supplier's image (2), trust (5), solidarity (4)	Price (5), time/effort/energy (5), conflict (3)
Mathwick et al. (2001) Internet and catalog shopping	Reflective	Aesthetics (6), playfulness (5), service excellence (2), customer ROI (6)	
Sweeney and Soutar (2001) Durables	Reflective	Emotional value (5), social value (4), performance/quality (6)	Price (4)
Petrick (2002) Fast-food restaurant service	Reflective	Quality (4), emotional response (5), reputation (5)	Monetary price (6), behavioral price (5)
Lam et al. (2004) Courier services (business-to-business)	Reflective	Service quality (5)	Price competitiveness (5)
Heinonen (2004) Online bill payment service	Reflective	Technical value (1), functional value (1), temporal value (1), spatial value (1) ^a	Technical value (1), functional value (1), temporal value (1), spatial value (1)
Wang et al. (2004) Security firms	Reflective	Functional value (4), social value (3), emotional value (5)	Perceived sacrifice (6)
Liu et al. (2005) Financial staffing services	Reflective	Core service (3), support service (4)	Economic value (3)
Pura (2005) Directory services	Reflective ^b	Social value (3), emotional value (2), epistemic value (3), conditional value (2)	Monetary value (3), convenience value (4)
Lin et al. (2005) Web services	Reflective and formative	Web site design (5), fulfillment/reliability (3), security/privacy (3), customer service (3)	Monetary sacrifice (2)

^a The value components include an assessment of benefits and sacrifices.

^b Six value components investigated independently; the discussion does not suggest a formative conceptualization.

that use a benefits and sacrifices approach, causality should move from benefits and sacrifices to service value (Lin et al., 2005). Second, indicators in reflective models should be interchangeable (Jarvis et al., 2003), but benefits and sacrifices components are clearly unique, distinguishable, and not interchangeable (Lin et al., 2005). Third, with reflective measures, all components should covary with one another (Jarvis et al., 2003; MacKenzie et al., 2005); however, though some benefit components of service value may correlate with sacrifice components, no theoretical reason establishes that all must do so. Therefore, when using a trade-off framework, the best model of service value consists of formative components.

Although the use of reflectively measured latent constructs dominates marketing research (Diamantopoulos and Winklhofer, 2001), formative indexes have a long and rich tradition in social science research (e.g., Cronbach and Glesser, 1953), such as the American Customer Satisfaction Index (Fornell et al., 1996), the Swedish Customer Satisfaction Barometer (Fornell, 1992), and the retailer equity index (Arnett et al., 2003). Lin et al. (2005) provide the only study that models service value in a formative manner. Although they find strong support for such a formative conceptualization of value, their study is limited in that (1) they cannot generalize the identified components of service value to contexts beyond the Internet and (2) the study is context specific and focuses on value only for online shoppers in a single country (Taiwan).

Following Zeithaml's (1988) approach and consistent with Vargo and Lusch's (2004) suggested service-dominant paradigm, this research attempts to understand customer value by examining service-related issues and thus investigates service value—or the customer's perception of the benefits he or she receives weighed against his or her sacrifices in the context of service delivery. The term *service value* describes the focus on the role of various service components in shaping customers' perceptions of value. The proposed conceptualization of service value therefore includes benefits and sacrifices and employs a formative approach to overcome the issues associated with reflective conceptualizations. The next section argues for the necessity of using a higher-order conceptualization of service value and then identifies salient components of the construct.

3. A higher-order formative conceptualization of service value

In addition to a formative manner, service value needs to be modeled as a higher-order construct. Higher-order constructs have multiple dimensions, each of which represents an important aspect of the construct (Bollen and Lennox, 1991). According to MacKenzie et al. (2005), the distinction between reflective and formative indicator models generalizes to higher-order factor structures. For many constructs conceptualized at a more abstract, second-order level, multiple first-order subdimensions

serve as reflective or formative indicators. Table 1 identifies recent studies of service value that conceptualize this value as a higher-order construct.

Some studies also conceptualize customer value in a unidimensional (first-order) manner (e.g., Blackwell et al., 1999; Cronin et al., 1997; Cronin et al., 2000; Grewal et al., 1998; Teas and Agarwal, 2000; Yang and Peterson, 2004). According to Podsakoff et al. (2006), social researchers should use higher-order models when the construct is complex, because such models treat each dimension as an important component of the construct. Similarly, service value provides a higher-order construct, following Bollen and Lennox (1991), with different dimensions that represent distinct facets of the construct.

3.1. Service value components

According to multidimensional approaches, service value depends on a combination of monetary and nonmonetary sacrifices, quality, performance, and disconfirmation experiences that represent a “richer, more comprehensive measure of customers’ overall evaluation of a service than service quality” (Bolton and Drew, 1991, p. 383). Although many variables likely contribute to customer perceptions of service value, four have the strongest theoretical support: service quality, service equity, confidence benefits, and perceived sacrifice. The subsequent discussions of each of these components indicate why they should be considered salient components of service value.

3.1.1. Service quality

Delivering a high-value service offering depends on customer perceptions of quality (Berry, 1995; Grönroos, 1995). If a company’s service delivery relies on a core physical product (e.g., a cellular telephone for wireless communication services), the physical good’s quality provides a component of perceived value (Rust and Oliver, 1994). However, independent of the offering’s position on the goods–services continuum, perceived service quality represents an essential pillar of value (Grönroos, 1995). Because competitors find it difficult to imitate service quality (Parasuraman and Grewal, 2000), this component represents a basis for differentiation (Berry, 1995) and competitive advantage (Reichheld and Sasser, 1990) for building service value. Both Lapierre (2000) and Lam et al. (2004) conceptualize service quality as a component of service value.

3.1.2. Service equity

Service equity—also referred to as service image or service brand equity—provides a second component of service value. Berry and Parasuraman (1991) contend that service image offers a source of value creation, in that company communications and customers’ experiences with the service define their perceptions of the brand. A strong brand creates feelings of proximity, affection, and trust and thus contributes significantly to customer perceptions of value. Cultivating brand equity in services is especially important given the intangible nature of the invisible purchase that a service represents (Berry, 2000). In turn, service equity serves as a signal for customers in various service settings (Singh and Sirdeshmukh, 2000). Therefore, service equity likely

provides a salient dimension of service value and a path to value creation for the customer. Lapierre (2000) also includes service image as a component of service value.

3.1.3. Confidence benefits

The benefits derived from an ongoing relationship with the service provider represent another value component to consider in evaluations of the service delivery process. Customer confidence entails “having belief, trust, or faith in an organization, its staff and services” (Flanagan et al., 2005, p. 374). In Gwinner et al.’s (1998) typology of relational benefits—those benefits that customers receive beyond the core delivered service—confidence benefits, which refer to feelings of trust and anxiety reduction, represent the most important benefits customers receive across a wide range of industries. As customers engage in relational behavior and accumulate service encounter experiences, their level of uncertainty decreases as their knowledge of the service provider increases (Gwinner et al., 1998). Subsequent research on confidence benefits shows that the construct consistently predicts satisfaction well in service relationships (Colgate et al., 2005; Hennig-Thurau et al., 2002). Colgate et al. (2005) contend that customers most value the sense of security that service firms provide through relationships, and Hennig-Thurau et al. (2002) suggest that service firms should emphasize trustworthy behaviors because confidence is a salient aspect of what customers value in a service relationship.

3.1.4. Perceived sacrifice

Finally, customers may face sacrifices that involve both monetary and nonmonetary costs to obtain a service. Although customers do not always want low prices, they consistently want the service to be worth the money they spend. For some customers or in some situations, nonmonetary sacrifices (e.g., time, effort, energy expended) might be even more important than monetary sacrifices; for example, time-constrained consumers patronize convenience stores and increasingly shop online to save time and effort. In this regard, the time spent making the buying decision and waiting to access, receive, and complete the service is relevant (Berry et al., 2002). Many studies include a sacrifice component to conceptualize service value, including Lam et al. (2004), Lapierre (2000), Lin et al. (2005), Petrick (2002), Sweeney and Soutar (2001), and Wang et al. (2004), which further suggests that this factor should appear in the present conceptualization of service value.

3.2. Operationalizing service value

To create a higher-order, formative index, this study uses formative rather than reflective indicators (Arnett et al., 2003; Diamantopoulos and Siguaw, 2006). Although many variables could be components, each service value component should be essential in forming customer perceptions of value. In the studies listed in Table 1, 28 unique benefit components and 5 unique sacrifice components of value exist. This research focuses on the 4 components that have the strongest theoretical support and generalize best to service value across a variety of contexts. In other words, the formative construct includes measures that

influence the underlying latent construct rather than being influenced by it. Therefore, the measurement of service value contains formative components that can cause changes in the latent construct service value (see Fig. 1).

4. Methodology

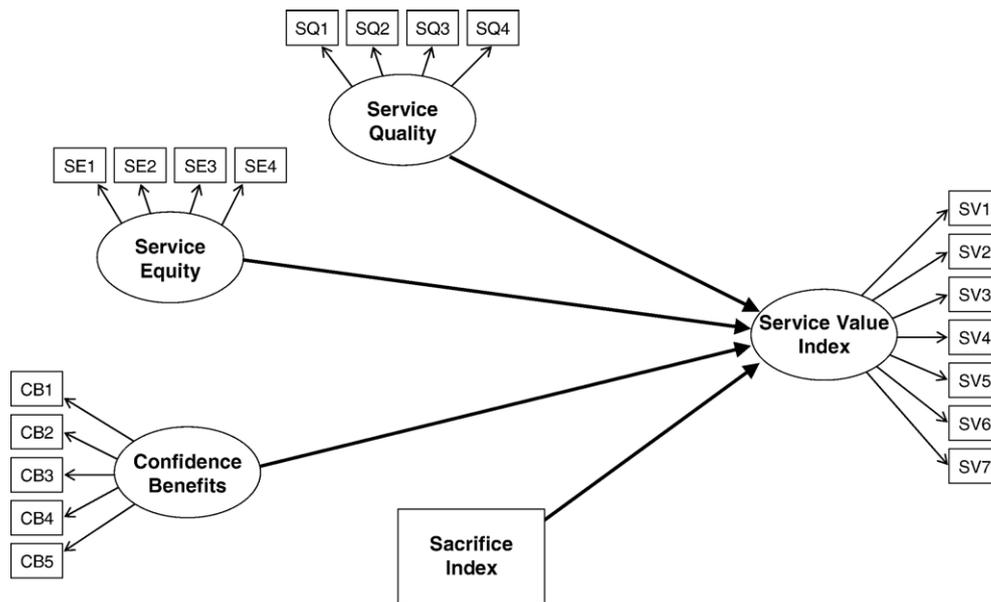
In response to limitations of existing research, this study attempts to achieve three goals: (1) identify components that indicate service value—namely, service quality, service equity, confidence benefits, and perceived sacrifice; (2) build a formative index to capture a multidimensional conceptualization of service value; and (3) evaluate this conceptualization by examining the robustness across different types of services. A survey methodology supports this study, as explained next.

4.1. Measures and data collection

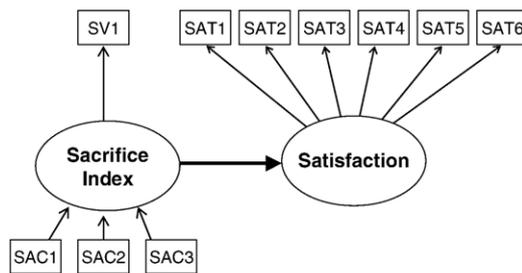
A self-reported questionnaire gathers information about relationships between service providers and 800 respondents

(500 U.S. and 300 Spanish consumers). To provide a robust test of the measure, the questionnaire includes a variety of services that differ in terms of how customers perceive them. In particular, respondents in both countries completed one of three questionnaire forms that represent the three categories of service providers suggested by Bowen (1990): Group 1—high-contact, customized, personalized services (e.g., medical care, barbershop); Group 2—moderate contact, semi-customized, nonpersonalized services (e.g., dry cleaning, auto repair); or Group 3—moderate contact/standardized services (e.g., health club, fast-food restaurant). Each respondent reported on a service provider with which he or she perceived having a strong, established relationship (cf. Gwinner et al., 1998).

The service value components consist of a collection of 18 items that measure each of the components: service quality (5 items), service equity (5 items), confidence benefits (5 items), and perceived sacrifice (3 items). All items came directly or slightly modified from previously validated measures. Specifically, the service quality scale comes from Taylor and Baker



Service Value Index Model



Sacrifice Index Model

Fig. 1. MIMIC models.

(1994); service equity items from Yoo and Donthu (2001) and Ha (1996); confidence benefits items from Gwinner et al. (1998); and the perceived sacrifice measures from Sweeney and Soutar (2001) and Blackwell et al. (1999). The scales, which appear in the Appendix A, are seven-point Likert scales anchored at strongly disagree and strongly agree.

Both reflective and formative measures may be associated with a particular construct (Fornell, 1982), but of the service value components examined, only perceived sacrifice is a formative construct, with price, time, and effort indicators. The perceived sacrifice construct therefore combines monetary and nonmonetary sacrifice measures in a formative way, because they do not necessarily correlate positively and may correlate negatively. The remaining components—service quality, service equity, and confidence benefits—are first-order latent constructs measured by reflective indicators.

Finally, three other sets of measures appear in the survey. In line with MacKenzie et al.'s (2005) recommendations for developing and evaluating constructs with formative measures, seven reflective (direct) measures of value, used in previous research (Grewal et al., 1998; Sweeney and Soutar, 2001), assess the service value measure. Two constructs also provide an external validity assessment: customer satisfaction, which uses six items based on Taylor and Baker's (1994) and Oliver's (1980) work, and repurchase intentions, which employs three items from Zeithaml et al. (1996).

4.2. Respondent samples

4.2.1. U.S. sample

Students collected data for this sample, a technique that services marketing studies use successfully (cf. Gwinner et al., 1998). A total of 100 undergraduate students from a public university in the midwestern United States participated as data collectors as part of a class assignment and distributed 500 questionnaires to U.S. customers. Each student distributed five questionnaires among their network of acquaintances from each of five age ranges (i.e., 19–29, 30–39, 40–49, 50–59, and over 60 years of age) and collected data from at least two respondents of each gender. The distributed questionnaires included three versions that represent each of Bowen's (1990) three industry groups, within each data collector's set of five questionnaires. The students collected all questionnaires within 14 days of distribution. Of the 500 questionnaires, 6 did not contain a complete set of responses, so the sample includes 494 responses (170, 158, and 166 for the service industry Groups 1, 2, and 3, respectively).

4.2.2. Spanish sample

In Spain, two doctoral students trained in field research at a public Spanish university distributed 300 questionnaires to customers using similar age and gender quotas. Of these, 254 of the responses are usable (55, 107, and 92 for Groups 1, 2, and 3, respectively). Thus, the data collection results in 748 valid questionnaires across the two samples, including 225 from Bowen's (1990) Group 1, 265 from Group 2, and 258 from Group 3.

Table 2
MIMIC model statistics

	Entire sample	Industry Group 1	Industry Group 2	Industry Group 3
<i>MIMIC model</i>				
Service value index ^a	<i>N</i> =754	<i>N</i> =226	<i>N</i> =269	<i>N</i> =259
Service quality (SQ) component^b	0.41***	0.39***	0.45***	0.32***
SQ1	0.84	0.84	0.83	0.83
SQ2	0.84	0.82	0.82	0.84
SQ3	0.87	0.83	0.87	0.90
SQ4	0.79	0.78	0.83	0.72
Service equity (SE) component^b	0.23***	0.14	0.27***	0.18**
SE1	0.75	0.63	0.85	0.70
SE2	0.89	0.89	0.90	0.87
SE3	0.91	0.95	0.87	0.92
SE4	0.75	0.82	0.69	0.75
Confidence benefits (CB) component^b	0.16***	0.23***	0.12	0.18**
CB1	0.86	0.81	0.89	0.82
CB2	0.88	0.84	0.90	0.87
CB3	0.87	0.79	0.87	0.89
CB4	0.78	0.81	0.80	0.69
CB5	0.85	0.90	0.86	0.76
Sacrifice (SAC) component^c	-0.25***	-0.25***	-0.19***	-0.34***
<i>MIMIC model: reflective indicators</i>				
SV1	0.72	0.69	0.77	0.64
SV2	0.78	0.76	0.80	0.79
SV3	0.86	0.84	0.85	0.87
SV4	0.83	0.84	0.82	0.85
SV5	0.85	0.81	0.85	0.87
SV6	0.71	0.66	0.81	0.59
SV7	0.83	0.80	0.84	0.83
<i>Measures of fit</i>				
χ^2 (<i>df</i> , <i>p</i>)=(180, 0.00)	905.8	554.8	450.9	432.8
<i>R</i> ²	0.68	0.60	0.76	0.61
Disturbance ^d	0.56	0.62	0.49	0.63
NFI	0.92	0.85	0.89	0.88
CFI	0.94	0.90	0.93	0.93
GFI	0.89	0.81	0.85	0.85
SRMR	0.09	0.08	0.11	0.11
RMSEA	0.07	0.09	0.08	0.07

Industry Group 1: (high-contact/customized/personalized services).

Nice restaurants, beauty salon, medical care services, barber shop, dental care, legal services, investment brokerage firms, financial consulting/accounting services.

Industry Group 2: (moderate contact/semi-customized/non-personal services).
Photo finishing services, shoe repair, laundry and dry cleaning services, computer repair, auto repair, veterinarian care, banking services, cellular/mobile phone service.

Industry Group 3: (moderate contact/standardized services).

Health club, airlines, movie theater, grocery store, express mail services, copying/printing services, retail clothing store, fast-food restaurant.

^a Standardized parameters. Bold parameters represent the beta coefficient (contribution) of the proposed relationship between each service value component and the service value index.

^b Reflective component. Parameters represent the loadings between the indicators and the component.

^c Formative component. Parameters represent the beta coefficient (contribution) of the proposed relationship between each sacrifice indicator and the sacrifice index.

^d Disturbance represents the error term in formative measurement models (Diamantopoulos, 2006).

Table 3
Descriptive and measurement statistics

	Mean	SD	CA	CR	AVE	1	2	3	4	5	6	7
1. Service equity ^a	5.38	1.30	0.89	0.92	0.76	(0.87)						
2. Service quality ^a	5.72	1.06	0.90	0.93	0.77	0.62	(0.88)					
3. Confidence benefits ^a	5.32	1.49	0.93	0.94	0.76	0.58	0.66	(0.87)				
4. Sacrifice ^b	3.26	1.36	n.a.	n.a.	n.a.	-0.18	-0.21	-0.19	n.a.			
5. Service value ^a	5.31	1.18	0.93	0.94	0.69	0.62	0.70	0.63	-0.37	(0.83)		
6. Customer satisfaction ^a	5.72	1.20	0.96	0.97	0.83	0.65	0.80	0.73	-0.26	0.80	(0.91)	
7. Repurchase intentions ^a	5.91	1.28	0.87	0.91	0.72	0.62	0.64	0.61	-0.28	0.65	0.76	(0.85)

Notes: Mean = the average score for all items included in this measure; SD = standard deviation; CA = Cronbach's alpha; CR = composite reliability; AVE = average variance extracted; n.a. = not applicable. The **bold** numbers on the diagonal are the square root of the AVE. Off-diagonal elements are correlations among constructs.

^a Reflective construct.

^b Formative construct.

4.3. Data analysis

Structural equation modeling serves to construct the formative service value index (Diamantopoulos and Winklhofer, 2001; Jarvis et al., 2003). To operationalize service value, the process follows the steps suggested by MacKenzie et al. (2005) to avoid model misspecification and therefore defines and evaluates the conceptual dimensionality of the construct, generates a set of measures to represent the construct's domain fully, considers the relationships among the construct's measures, and specifies the measurement and structural relationships to be tested. As previously described, the first two steps took place prior to the data collection; the latter occurred during the data analysis. Fig. 1 shows that the formative measure consists of a second-order formative factor composed of three reflective components (service equity, service quality, and confidence benefits) and one formative component (sacrifice).

To identify the service value index measurement model, a multiple indicator multiple causes (MIMIC) model uses seven reflective indicators of value. This MIMIC model approach can assess the appropriateness of a set of formative indicators (Diamantopoulos and Winklhofer, 2001), including item validity, discriminant validity among the components, and nomological validity (MacKenzie et al., 2005). The examination of external validity linked the service value index to two well-known constructs, customer satisfaction and repurchase intentions, that theoretically relate to service value. The test of the measurement and structural models employs EQS 6.1.

5. Results

5.1. Measurement model estimation

Tables 2 and 3 provide the results from assessments of the measurement model in terms of interconstruct correlations, item-to-construct correlations, Cronbach's alphas, composite reliabilities, and average variance extracted (AVE) for each construct, as well as overall fit.

Determining how well each item relates to the latent constructs indicates the reliability of each service value component, as well as of the other measures. Table 2 provides the construct-to-item loadings of the reflective measures for the entire sample, which demonstrate that all standardized loadings

exceed 0.74. The loadings for the direct reflective measures of customer satisfaction and repurchase intentions are as expected (i.e., greater than 0.78).

Two measures gauge internal consistency: Cronbach's alpha and composite reliability. Nunnally (1978) suggests 0.70 as a benchmark for a "modest" reliability during the early stages of the research and 0.80 as a more "strict" reliability applicable to basic research. As Table 3 shows, both the alphas and the composite reliability of the set of reflective measures for each component of the service value index and the other measures exceed 0.89.

The test for discriminant validity involves several steps. First, for the reflective components, the average variance extracted (AVE) indicates the amount of variance captured by the construct in relation to the variance due to measurement error. Second, the comparison of the square root of the AVE (i.e., diagonal in Table 3) with the correlations among constructs (i.e., off-diagonal elements) reveals that the square root of the AVE for each reflective component exceeds 0.87, and each is greater than the correlation between components, in support of discriminant validity, which requires that the diagonal elements be greater than the off-diagonal elements (Fornell and Larcker, 1981). These findings provide evidence of discriminant validity among the components and the constructs.

These results also support the appropriateness of the first-order reflective measures and suggest that all the items are good indicators of their respective components. In particular, the service value component reflective measures are reliable and internally consistent and have discriminant validity. The sacrifices

Table 4
Nomological validity test

	Entire sample	Industry Group 1	Industry Group 2	Industry Group 3	ANOVA
Mean of service value components:					
Service quality (SQ)	5.72	6.13	5.46	5.64	0.00
Service equity (SE)	5.38	5.78	5.11	5.31	0.00
Confidence benefits (CB)	5.32	5.95	4.87	5.23	0.00
Sacrifice (SAC)	3.26	3.32	3.19	3.29	0.53

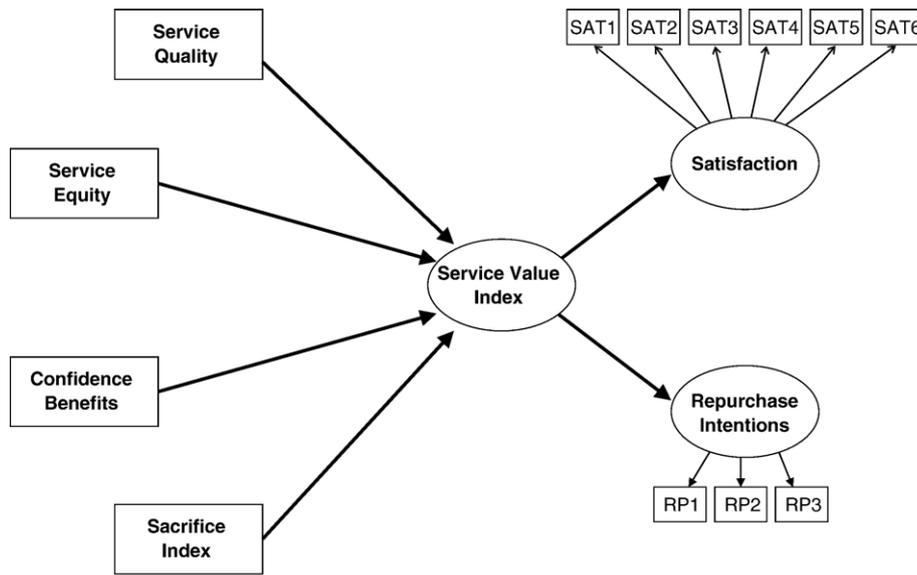
Notes: Mean = the average score for all items included in this measure.

component is formative and therefore requires its own MIMIC model to assess validity. One reflective item related to sacrifices (“The value I receive from this company’s services is worth the time, effort and money I have invested”), as well as the satisfaction construct as a related variable, identifies the model and indicates the contributions of each individual item to the sacrifice index. The results indicate that price (0.15) and time (0.16) are significant and similar contributors to the index; the effort item is not significant and the effect is smaller (0.07).

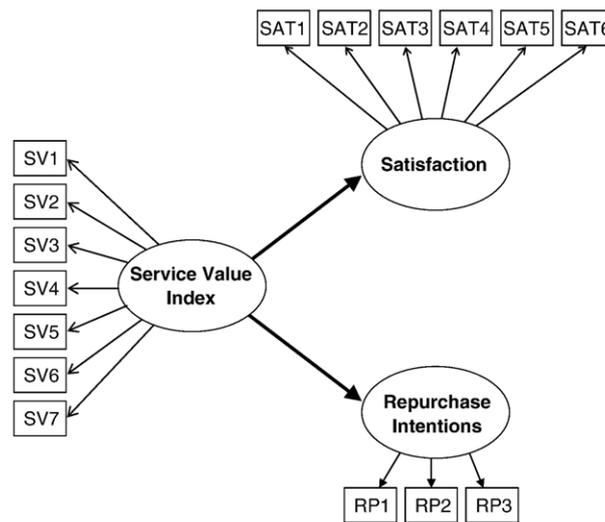
Finally, high-quality measures from previous research assess the conceptualization of service value as a formative second-order factor. A collinearity test on the index indicates minimal collinearity among the four components, with the variance inflation factor of all items ranging between 1.30 and 2.20, far below the common cut-off threshold of 5–10. Thus, the four

service value components do not correlate perfectly and exhibit discriminant validity, which is desirable because high multicollinearity would challenge assessments of component validity (Diamantopoulos and Winklhofer, 2001).

The coefficients of the four service value components are as expected. As Table 2 reveals, the component weights for service quality (0.41), service equity (0.23), confidence benefits (0.17), and perceived sacrifice (−0.25) suggest that each component is an important determinant of service value. Although the overall chi-square for the measurement model is 905.8, with 180 degrees of freedom, the fit indices indicate that the model fits the data well: the normed fit index (NFI), comparative fit index (CFI), and goodness-of-fit index (GFI) statistics are at or above 0.90, and the square root mean residual (SRMR) and root mean square error of approximation (RMSEA) are at or below 0.09. In addition, the



Model A



Model B

Fig. 2. Models for external validity assessment of the service value index.

four components explain a relatively large amount of variance in service value, and the R^2 value is 0.68.

In general, the weights of the four service value components (Table 2) suggest that the contributions of each are relatively consistent—in terms of both the magnitude and the relative order—across service contexts. Although the importance of the various components remains fairly consistent across the three industry groups, some variation exists. For example, in standardized services (Industry Group 3), the weight of perceived sacrifice is the greatest component of the service value index (weight=−0.34), followed by the contribution of service quality (weight=0.32); for moderate contact or semi-customized services (Industry Group 2), the relative weight of perceived sacrifice decreases (weight=−0.19), reaching the lowest level. In personalized, high-contact services (Industry Group 1), service quality, sacrifice, and confident benefits are all salient (0.39, −0.25, and 0.23, respectively). However, the pattern of weights, in general, remains relatively consistent across contexts.

5.2. Salience of service value components across contexts

Assessing the salience of the various service value components across service contexts requires splitting the data into three sets corresponding to the three industry groups. Table 2 reveals that the relative importance of the service value components varies minimally across industry contexts. In particular, the salient role of service quality does not depend on the context, because the weight of this component in the index is similar across industry groups. That is, across the three industry groups, service quality consistently emerges as the most salient component of service value, with weights ranging from 0.45 to 0.32.

Service equity, perceived sacrifice, and confidence benefits also have relatively consistent weights across the three industry groups. In particular, the range of the service equity weights, though slightly larger than the range of weights for service quality, is relatively small; the component weight for semi-customized, non-personal services (Industry Group 2) (weight=0.27) is a little more than that for either high-contact (Industry Group 1) (weight=0.14) or standardized services (Industry Group 3) (weight=0.18). For perceived sacrifice, the range of the weights is a little greater. Confidence benefits also make a greater contribution to the service value index in the personalized high-contact services (weight=0.23).

5.3. Nomological and external validity

According to MacKenzie et al. (2005, p. 178), nomological validity “can be assessed by using groups with recognized differences on the construct of interest and testing whether the mean level of the construct differs across these groups in the hypothesized direction.” To provide such evidence, this study again splits the data into three sets that correspond to the three industry groups of Bowen (1990) and tests the differences at the mean level of the service value components. As the level of interpersonal interaction with a service increases, the means of

service quality, service equity, and confidence benefits should increase, because customers prefer high-quality solutions rather than economic solutions when they are more involved or the perceived risks are larger.

Table 4 displays the means of the service value components, which vary significantly across the different industry contexts, except for the sacrifice component. In particular, the means of each service value component are significantly higher in Industry Group 1, which represents services with which the customer is more involved and has a greater number of interactions with service employees. These results provide support for nomological validity.

Finally, to provide evidence of external validity, the service value index should correlate significantly with other theoretically associated constructs (Bagozzi, 1994). Fig. 2 examines the relationship between service value and two constructs—customer satisfaction and repurchase intentions—that theory suggests should be related (cf. Fornell et al., 1996; Grewal et al., 1998; Pura, 2005; Woodruff, 1997). Consistent with services literature (e.g., Cronin et al., 2000), the estimated model uses the service value index as an antecedent of each of the two constructs (see Fig. 2). The resulting statistics confirm the external validity of the service value index, and the coefficients are significant in each relationship (customer satisfaction $\gamma=0.98$, repurchase intentions $\gamma=0.84$), as Table 5 shows. The fit indices also suggest that the model fits the data well: The NFI, CFI, and GFI statistics are all at or above 0.9, and both SRMR and RMSEA are at or below 0.07. Also, the service value index explains a large proportion of the variance for each construct (customer satisfaction $R^2=0.96$, repurchase intentions $R^2=0.79$). Overall, the statistics support the external validity of the service value index.

Table 5
Criterion validity comparison of service value measurement approaches

	Formative index (model A)	Reflective measure (model B)
	Standardized parameter estimate	Standardized parameter estimate
<i>Path</i>		
Service value → customer satisfaction	0.98	0.86
<i>t</i> -value	4.55**	20.81**
R^2	0.96	0.74
<i>z</i> -value for differences in R^2	3.03**	
Service value → repurchase intentions	0.84	0.74
<i>t</i> -value	4.54**	19.51**
R^2	0.79	0.55
<i>z</i> -value for differences in R^2	3.02**	
<i>Measures of fit</i>		
χ^2 (<i>df</i> , <i>p</i>)	451.2 (56, 0.00)	1097.3 (102, 0.00)
NFI	0.95	0.91
CFI	0.96	0.92
GFI	0.90	0.82
SRMR	0.02	0.07
RMSEA	0.07	0.12

** $p < 0.01$.

In addition, the formative index significantly outperforms a reflective measure in terms of criterion validity (Diamantopoulos and Siguaw, 2006). An analysis of the differences between correlations (Hittner et al., 2003; Olkin, 1967) indicates that the variance explained (measured with R^2) for customer satisfaction and repurchase intentions is significantly greater with the proposed index. The magnitude of the path coefficients between the two service value measures and each of these two constructs is greater with the index. These results suggest that a formative index of service value not only is conceptually correct but also provides a significantly better predictor of these two constructs than a reflective measure of the construct.

6. Discussion

A review of the literature suggests three salient issues pertaining to customers' perceptions of value in service contexts: whether service value entails a higher-order construct, whether the components of service value are reflective or formative, and which service components should appear in the conceptualization. This study addresses these issues by (1) proposing that a higher-order (i.e., multidimensional) conceptualization of service value is superior to a unidimensional conceptualization; (2) arguing that a formative conceptualization of service value is the only appropriate approach when using a trade-off model (i.e., Zeithaml, 1988) as a framework; and (3) identifying four service components that should be strong indicators of service value and providing evidence of the robustness of this conceptualization through assessments across different service contexts.

6.1. A higher-order conceptualization

Existing literature approaches conceptualizations of service value in different ways. The unidimensional approach describes service value in a global fashion and measures the construct directly with reflective items to capture the concept of utility or value for money. However, this conceptualization prevents researchers from capturing the conceptual richness of the construct. Alternatively, the multidimensional approach considers service value a highly complex concept with many components. However, as many recent studies argue, the service value construct is too complex for a unidimensional approach but rather represents a higher-order construct. A higher-order model emphasizes the specific relevance of the different facets or dimensions of the construct and permits a distinction between item-level measurement error and factor-level measurement error, which in turn offers the most powerful means to test and evaluate the construct. Nevertheless, the choice to use higher-order models depends on the researcher, because both types of models (higher- and first-order) represent the same hypothetical construct. If the construct (i.e., service value) is the focus of the study, researchers probably should identify all different aspects that reflect it separately. If the construct is not focal, the researcher faces a trade-off in terms of the number (and type) of measures to use to capture the construct versus obtaining accuracy in the measurement model (MacKenzie et al., 2005).

6.2. Formative components

When using a trade-off model as the basis for conceptualizing service value, researchers should question the use of reflective components, because a formative conceptualization of service value is the only defensible conceptualization. Yet, with one exception, studies using a trade-off model approach employ reflective components. The fundamental essence of any construct, whether reflective or formative, determines how to model the construct's structure (Jarvis et al., 2003); however, researchers may not have thoroughly considered the essence of service value, because they appear to have ignored several issues. First, a reflective approach suggests that each component is (or should be) highly correlated with the others, because changes in the underlying construct cause changes in the components, but the benefit and sacrifice components that previous research identifies generally are not highly correlated. Second, a reflective approach indicates that the various components are not independent but rather result from the underlying construct; in contrast, previous research generally posits that benefit and sacrifice components cause (or contribute to) service value rather than vice versa. Third, a reflective approach suggests that the components are interchangeable; clearly, benefits and sacrifices are not. In light of these issues, compared with previous studies, this study more closely captures the essence of service value by constructing a formative index of the construct.

6.3. A higher-order, formative conceptualization of service value

Following Vargo and Lusch's (2004) call for a shift to a more service-based paradigm, this research argues that any conceptualization of customer value must include service elements—such as service quality, service equity, and confidence benefits—as well as perceived sacrifice. In conceptualizing service value as a higher-order formative construct, this research follows procedures recommended by MacKenzie et al. (2005) for developing and evaluating constructs with formative indicators. Each of the four components indicates reliability in the proposed model, which suggests that they offer good indicators of their respective components. All four components also are salient contributors across three service industry groups, and their contribution to the index reflects the expected direction. The relative importance of these service value components is consistent and varies minimally across the different industry groups; therefore, the index appears generalizable across contexts. Overall, the statistics support the external validity of the service value index.

7. Implications

7.1. Research implications

At least three research implications arise from this study. First, researchers should avoid unidimensional conceptualizations of service value whenever possible. Those scholars who attempt to capture the essence of service value by defining it as a single

dimension likely will emerge with an incomplete portrayal of the construct that limits their understanding of service value and its drivers and consequences.

Second, researchers who model service value as multidimensional, particularly in terms of benefits and sacrifices, but operationalize it with reflective components likely will conceptualize the construct incorrectly. For example, there is no conceptual reason why the *what I receive* components of service value (e.g., service equity) should correlate with the *what I give up* components (e.g., perceived sacrifice). Yet researchers make this assumption when they conceptualize these components as reflective, because a change in the latent variable (service value) affects all its indicators (components). By including reflective measures, previous models of service value may offer misspecifications, which can affect the conclusions and evidence that empirical research draws (Jarvis et al., 2003). Perhaps researchers in marketing have been blindly following prior research rather than closely examining the assumptions behind the definitions and operationalizations in service value literature. At any rate, researchers who intend to include multiple dimensions of service value, particularly those who use Zeithaml's (1988) trade-off model as an organizing framework, should consider a higher-order formative approach. Furthermore, even if they use a unidimensional approach to operationalize service value, researchers should carefully consider the items they include; if they use separate items to capture benefits and sacrifices, a formative approach remains advisable.

Third, this study provides empirical evidence in support of a higher-order, formative approach. The robust, formative index of service value is conceptually superior to a reflective conceptualization of value, includes four salient service components that make significant contributions to service value, and appears generalizable and effective across multiple contexts. As such, this conceptualization of service value should provide guidance for researchers as they continue to study this construct.

7.2. Managerial implications

This study highlights issues of direct relevance to managers responsible for creating or measuring service value. Consistent with emergent thinking on competing through service, this study supports the notion that firms can achieve competitive advantage by focusing on service value. In an environment that is increasingly and globally competitive, management efforts directed toward better understanding and measuring service value will improve an organization's competitive position. The study results might influence managerial decisions in at least two areas: service value measurement and company performance.

7.2.1. Measuring customer perceptions of value

Managers conducting research on customers' perceptions of service value should reexamine their measures to ensure that they appropriately capture the construct. A simple, direct measure is inadequate; managers who employ direct service value measures likely do not capture the conceptual richness of

this multidimensional construct. The proposed higher-order, formative operationalization of service value implies that such a measure must contain several service components, because their omission prevents a comprehensive understanding of the construct.

Why should managers care? The failure to specify a measurement model properly can bias estimates of the structural relationships between constructs, and misspecifications can lead to poor or incorrect decision making. For example, a well-intentioned manager of an eye care clinic might decide to invest in expensive redecorating to improve the image of the firm and thus perceived service equity. On the basis of the strength of the structural relationships, the manager makes certain assumptions about the expected impact of visual amenities on patients' value perceptions, patients' future behavior, and, ultimately, the clinic's return on investment. However, such a decision may be improper if the manager's measurement instrument over-emphasizes the relative contribution of service equity (i.e., attractive office decor) to service value and future behavior by ignoring other aspects of service value (i.e., confidence benefits, such as the physician taking time to relieve the patient's anxiety by discussing the procedure). In the end, the use of poor service value measures results in poor managerial decisions.

Allocation of resources also might vary according to the conceptualizations of service value. A formative model enables a manager to determine which value components are the most influential in forming customers' value perceptions and, in turn, allocate resources to reduce perceived sacrifice, improve service quality, enhance service equity, or develop confidence benefits, depending on the relative weight of each in value perceptions. In the preceding example, the eye clinic manager could decide to allocate funds to increase physicians' hours rather than investing in expensive remodeling if confidence benefits emerge as more influential than service equity in patients' value perceptions. That is, the proposed model indicates the relative importance of each component, so managers do not jeopardize customers' value perceptions by mistakenly focusing on relatively less important value components.

7.2.2. Performance on service value elements

Customer perceptions of value depend significantly on service elements; therefore, service must be an integral part of any customer value strategy. In particular, the model decomposes service value into elemental parts, and by improving on one or more of these factors, managers can affect service value and, ultimately, satisfaction and repurchase intentions.

The model also demonstrates that across contexts, service quality provides the strongest driver of service value, in support of previous literature that highlights service quality as an essential pillar of the value creation process. Therefore, all customer encounters should emphasize service quality. Managers must focus on delivering reliability and consistency to achieve perceptions of high service value, particularly in industries that exhibit moderate to high customer contact with some degree of personalized service. Considering the example of the eye care clinic again, the reliability and consistency of the service provided are critical to patients' perceptions of value.

Managers should take note of the importance of service equity by incorporating customers' perceptions of the brand into their measures of value and then developing strong brand images. Literature reveals the importance of branding for services, but the findings of this study also emphasize the relevance of service equity in the global context of value. Service equity is particularly salient in industries that generally do not provide high-contact, customized services, such as banking, automobile repair, airline travel, and health clubs. Strong brand images portrayed through marketing communications and customer interactions play significantly into customers' value perceptions, so managers should invest in building positive brand equity, understand what their brands represent to customers, and consistently reinforce that image at every customer contact point.

Similarly, confidence benefits (e.g., trust, anxiety reduction) contribute to service value, but their importance level may vary across industries. For example, confidence benefits are more important when the service is highly personal and involves high contact, such as in the dental services, legal services, and financial consulting industries. Customers value a sense of confidence in and reduced anxiety with providers of complex services. This finding is consistent with the key role of trust in high-contact, customized services; therefore, service providers such as doctors, lawyers, and financial consultants should take particular care to emphasize confidence benefits. Subtle visual cues that inspire trust (e.g., sedate décor in a lawyer's office, diplomas on the doctor's office walls) might improve perceived service value.

Finally, managers must recognize that customers attach varying levels of importance to what they perceive as the sacrifices they commit to purchase or use a service, and the level of importance varies across industries. Customers are more sacrifice conscious when they consume impersonal, standardized services and become less so as the service becomes more personalized. For standardized services such as movie theaters and fast-food restaurants, managers should consider customer perceptions of the price, time, and effort they expend to acquire and use the service, because customers weigh these sacrifices against the benefits they receive. For example, credit card kiosks that allow moviegoers to purchase tickets without standing in line reduce perceived levels of sacrifice, which may increase customers' overall perception of value.

The four service value components may work independently. For example, a firm may make investments to improve service quality but choose to absorb the cost of these investments rather than pass them on to customers in the form of higher prices. This scenario likely increases customer perceptions of value. However, marketers cannot simply assume the independence of these components. If a firm's service quality investment increases customer sacrifices (e.g., increased cost or effort to acquire or use the service), the customer may perceive a reduction in service value; that is, the sacrifices could outweigh the service quality gains. Because of the potential interdependence of the various value components, managers must attempt to understand the unique composition of service value that marks their particular industry. Knowing what to emphasize, how the various value components affect one another, and

where to invest funds to maximize customers' value perceptions will lead to superior performance and competitive advantage.

7.3. Limitations and further research

Certain limitations mark this study but also suggest some directions for additional research. First, the list of service components may not be exhaustive; rather, this research identifies a salient, generalizable, consistent group of service components across contexts and consumers. Other researchers suggest a range of variables that may contribute to customer perceptions of service value, some of which may be salient in specific situations or for certain types of customers. For example, in addition to confidence benefits, relational benefits such as social benefits and special treatment (Gwinner et al., 1998) may be meaningful in contexts that feature strong, interpersonal relationships between service providers and customers. Risk also might contribute to service value (cf. Flint et al., 2002). Further research should continue to assess the generalizability of the proposed service value index across contexts, as well as the extent to which other components may enhance a formative conceptualization of the construct.

Second, this study does not thoroughly examine service value differences across contexts. Additional work should investigate the extent to which value differs not only among service industries but also among cultures and customer types. For example, researchers could consider the extent to which the relative weights of the various service components differ across cultures. Also, though the importance of the various service value components remains fairly consistent across the three industry groups, the variation that exists should become a topic for further research.

Third, additional research should assess the relative impact of each service value component on marketing outcomes (e.g., customer loyalty, future purchase intentions, word-of-mouth communication). This study examines the relationship between service value and two such outcomes (customer satisfaction and repurchase intentions) but only as part of a validity test of the formative index. Although a positive relationship between unidimensional conceptualizations of value and customer loyalty exists (e.g., Cronin et al., 2000), further research should determine the extent to which the relationship holds with a multidimensional conceptualization of service value. Such research would enable researchers to explore the relative contribution of each service value component to marketing outcomes. To illustrate, a recent study by Brady et al. (2005) that employs a unidimensional approach to conceptualize service value reports a total effect of service quality on repurchase intentions (calculated by adding the direct and indirect effects reported in their comprehensive model) ranging from 0.60 to 0.72; in contrast, in this study, service quality, conceptualized as a second-order component of service value, has a total effect on repurchase intentions of only 0.37. Such a difference is surprising, especially because of the similarities of the measures in both studies. More research therefore should investigate the impact of other relevant service components and the extent to which the formative conceptualization proposed in this research accounts for such a difference.

Appendix A. Measurement items

SQ: Service quality

- SQ1. In general, this company's service is reliable and consistent.
 SQ2. My experience with this company is always excellent.
 SQ3. I would say that this company provides superior service.
 SQ4. Overall, I think this company provides good service.

SE: Service equity

- SE1. It makes sense to buy this company's services compared to others, even if they are the same.
 SE2. Even if another company offers the same service, I would still prefer this company.
 SE3. If another company offers services as good as this company's, I would still prefer this company.
 SE4. If another company is not different from this company in any way, it still seems smarter to purchase this company's services.

CB: Confidence benefits

- CB1. I have more confidence the service will be performed correctly.
 CB2. I have less anxiety when I buy/use the services of this company.
 CB3. I believe there is less risk that something will go wrong.
 CB4. I know what to expect when I go to this company.
 CB5. I feel I can trust this company.

SAC: Perceived sacrifice

- SAC1. The price charged to get this company's services is high.
 SAC2. The time required to receive this company's services is high.
 SAC3. The effort I expend to receive this company's services is high.

SV: Service value (*reflective measure*)

- SV1. The value I receive from this company's services is worth the time, effort, and money I have invested.
 SV2. This company's services are reasonably priced.
 SV3. This company offers good services for the price.
 SV4. I am happy with the price of this company's services.
 SV5. This company makes me feel that I am getting my money's worth.
 SV6. The value of this company's services compares favorably to other service providers.
 SV7. This company offers good value for the price I pay.

SAT: Customer satisfaction

- SAT1. I am happy with this company's services.
 SAT2. Overall, I am pleased when I purchase this company's services.

- SAT3. Using this company's services is a satisfying experience.
 SAT4. My choice to use this company was a wise one.
 SAT5. Overall, I am satisfied with this company.
 SAT6. I think I did the right thing in deciding to use this company for my service needs.

RP: Repurchase intentions

- RP1. I intend to continue doing business with this company in the future.
 RP2. As long as the present service continues, I doubt that I would switch companies.
 RP3. I will choose this company the next time I need this service.

Note: All items use seven-point Likert scales anchored at 1 (strongly disagree) and 7 (strongly agree).

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