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RENTQUAL: A new measurement scale for car rental services

Abstract

Service quality perception is one of the key determinants of customer satisfaction and repeat purchase. As such, it has received considerable attention in the marketing literature. Quality issues in the car rental industry, however, have received less attention. Furthermore, there is lack of a scale developed to measure service quality in car rental services. This paper aims to develop a measurement scale in accordance with the procedure recommended by Churchill (1979) and Parasuraman, Zeithaml, and Berry (1988). Empirical studies were conducted in two waves. First, qualitative research was undertaken in the form of 23 in-depth interviews that produced 61 items describing tourists' perceptions. Then, a quantitative study was used to purify the scale items and to examine dimensionality, reliability, factor structure and validity. Finally, an 18-item RENTQUAL scale with the following six factors emerged: comfort, delivery, safety, handing over, ergonomics and accessibility. Results show that safety is the most important factor in car rental services. Paper also presents scale development procedure, discussion, implications and limitations.

Keywords:
car rental services; perceived service quality; scale development; RENTQUAL; North Cyprus

Introduction

Tourism is one of the most thriving sectors in the world. The World Tourism Organization (UNWTO, 2009) reports that international arrivals have reached 924 million tourists, with a 5 percent increase over the previous year, in spite of all the turbulences experienced in 2008. Among transport systems 47% of tourists prefer to use land, which suggests that around 440 million tourist arrivals required rental car, bus, or taxi service (UNWTO, 2009).

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Unlike tangible goods or pure services, most travel-related experiences are an amalgam of different goods and services like transportation, accommodation, food and beverage, and so on (Chen, & Gursoy, 2001). Transportation services have an important role in tourism, which requires some sort of movement to or from locations. Car rental agencies, along with many other factors, have played a vital role in increasing the ease of transportation by providing a service that allows tourists to easily travel within their destinations.

It seems that the importance of travel facilities, especially car rental business, will gain more attention and unavoidably car rental owners will have to provide more extensive and better quality services to be able to compete with the growing needs and expectations of international tourists. Since customer satisfaction is an outcome of service quality (Cronin, & Taylor, 1992; Anderson, & Sullivan, 1993) and customer satisfaction is associated with constructs such as repurchase intentions and word of mouth communication (Davidow, 2000), owners of car rental establishments must understand the expectations and perceptions of their customers.

Above discussion underlines the significance of rent a car service quality for tourist retention and the expansion and capacity of rent a car business in the tourism industry in the international markets. Keeping this in mind, the goal of this study is to develop a new construct to measure the service quality perception in car rental services. There is a need for an industry-specific and culture specific quality measurement for different services (Churchill, & Peter, 1980; Mattila, 1999; Hofstede, 2001; Ozer, 1999). Specifically, due to the exploratory nature of the study, its findings will provide useful insight to the industry, not only in North Cyprus, but also in other island states which depend heavily on the tourism as an economic development tool (Yavas, & Konyar, 2002).

This paper is organized in four sections. Firstly, conceptualization and operationalization of service quality measures in the literature are discussed briefly. Next, the methodology for developing the new scale is specified. Then, results and discussion of the findings are given. Finally, recommendations, limitations, and future research implications are provided.

Relevant literature

Over the past several years, there have been a variety of debates in the literature regarding service quality conceptualization and measurement. Service quality aims to achieve two important goals for a service organization: finding and retaining satisfied customers. In fact, service quality can be defined as a customer's perception of the overall superiority of an organization's excellence in providing service (Zeithaml, 1998).

Parasuraman et al. (1985, 1988) suggest that the customer's appraisal of the overall service quality depends on the gap between the actual performance and their expectations. Customers evaluate service quality using criteria such as tangibles, reliability, responsiveness, assurance and empathy. Among these, reliability is of most concern.

Parasuraman et al. (1985) developed an instrument called SERVQUAL, which has become the most widely used tool for measuring customer's perception of service quality. Numerous researchers have confirmed the applicability of five dimension model in different sectors in different countries (e.g. Gabbie, & Neill, 1996; Bojanić, & Rosen, 1994; Mehta, & Durvasula, 1998; Lam, & Zhang, 1998); although in a couple of studies the five dimension model was not confirmed (e.g. Carman, 1990; Babakus, & Boller 1992; Brown, Churchill, & Peter, 1993; Ryan, & Cliff, 1996). In consideration of other significant studies in the literature, it seems that service quality includes technical and functional quality (Grönroos, 1984); service product, environment and delivery (Rust, & Oliver, 1994); as well as interaction quality, physical environment quality and outcome quality (Brady, & Cronin, 2001).

Although many studies have used SERVQUAL as a framework for measuring service quality, there has also been extensive criticism directed toward this measure in the marketing literature (e.g. Buttle, 1996; Carman, 1990; Gabbie, & Neill, 1996; Jain, & Gupta, 2004). These criticisms have mainly revolved around the interpretation and implementation of the instrument in the service industry (Newman, 2001; Arasli, Mehtap-Smadi, & Katircioglu, 2005). Furthermore, a review of existing literature reveals that many studies have been conducted to measure service quality using the SERVQUAL model. As a result of this attempt, there have been, both, theoretical and operational criticisms which are mainly revolved around the interpretation and implementation of the instrument (Babakus, & Boller, 1992). On the theory side, for example, Buttle (1996) claimed that there is little evidence that customers evaluates service quality in terms of the gap between perceptions and expectations of a service and the model is based on the service delivery process as opposed to the service outcome. On the operational side, for instance, to find out the gap the questionnaire should be given twice to the same person, which leads to boredom and confusion (Lam, Wong, & Yeung, 1997; Smith, 1995; Newman, 2001).

One of the biggest problem with the SERVQUAL model results from its dimensional structure. A number of authors have reported different factors for expectation, perception, and gap score (Arasli et al., 2005). Thus, the universality of SERVQUAL's five dimensions has been questioned (Buttle, 1996; Carman, 1990; Cronin, & Taylor, 1992). Weaknesses regarding validity have also been indicated (Buttle, 1996). Moreover, the SERVQUAL instrument has been criticized for its lack of applicability in service industries in developing countries (Jain, & Gupta, 2004) and its inconsistent perception and expectation scores in cross-cultural studies (Zhao et al., 2002). Furrer, Liu, and Sudharshan (2000) claims that customers from different cultures perceive service quality differently. Voss, Roth, Rosenzweig, Blackmon, and Chase (2004) partly support this claim; they found that UK and USA customers had different reactions to poor service. However, and Calvert (2000) found many similarities among Chinese and New Zealand customer perceptions regarding expectations of service quality.

An additional problem with SERVQUAL is its dimensional structure. The researchers in different contexts reported different factors for expectations, perceptions and gap

scores. Thus, shortcomings concerning its universality as well as divergent and convergent validity issues have also been questioned (Buttle, 1996; Carman, 1990; Cronin, & Taylor, 1994). Moreover, Babakus, and Boller (1992) reported that SERVQUAL suffers from methodological issues, such as wording of items, definition of constructs and dissimilar scores. Despite the criticism, SERVQUAL remains widely used since it "provides the basic skeleton…which can be adapted or supplemented to fit the characteristics or specific research needs of a particular organization" (Parasuraman et al., 1988, p. 31).

Many researchers believe that adaptations and theoretical applications are necessary. Similarly, Brown et al. (1988) suggested that SERVQUAL has to be modified and adapt based on the industry, business and the location. For example, Khan (2003) suggests the ECOSERV model for measuring quality expectations in ecotourism. Several scales have been replicated, adapted and developed to measure services, such as SERVQUAL (Parasuraman et al., 1985, 1988), SERVPERF (Cronin, & Taylor, 1992, 1994) for hotels, clubs and travel agencies; DINESERV (Stevens, Knutson, & Patton, 1995) for food and beverage establishments; LODGSERV (Knutson, Stevens, Wullaert, & Yokoyoma, 1990) for hotels; SERVPERVAL (Petrick, 2002) for airlines; SYSTRA-SQ (Aldlaigan & Buttle, 2002) for banks; SITEQUAL (Yoo, & Donthu, 2001) for Internet shopping; E-S-QUAL (Parasuraman, Zeithaml, & Malhotra, 2005) for electronic services; and SELEB (Toncar, Reid, Burns, Anderson, & Nguyen, 2006) for educational services. However, less attention has been paid to the development of service quality measures in car rental services.

Extensive investigation of services in general and tourism in particular through a keyword search on major academic databases like Proquest, Elsevier, Ebsco, and Science Direct as well as search engines like Scholar Google, Yahoo, and Google revealed no validated scale for car rental services. In fact, no scale currently exists to assess rental car quality in the tourism industry as a whole. To date, relatively little is known about how the car rental business may influence tourism and hospitality. This study aims to fill this gap. Ozer (1999) recommends the development of industry-specific quality measurements for a better fit to the nature of the industry. Along these lines, the current study attempts to develop a new, multi-item measurement scale for assessing the perceived quality of car rental services. To do so, the eight-step approach proposed by Churchill (1979) and modified by Parasuraman et al. (1988) will be used.

To operationalize these steps, a grounded approach (Tabachnick, & Fidell, 1996) will be employed using both qualitative (in form of in-depth interview) and quantitative (in form of close ended survey instrument) techniques. In the grounded approach, the concept is developed according to the collected data, and the hypotheses related to this concept are improved in the research process. The hypotheses are then tested to come up with conclusions (Ozen, 2000). The reason for using these data collection techniques is to obtain the advantages of both techniques, quantitative (collecting data from large samples, expressing research findings in numerical terms and being more objective) and qualitative (exploring the research topic in greater depth, getting the

bigger picture of reality and being more familiar with the subject area). The development of a scale measuring rental car quality will facilitate studies investigating the prevalence, cause, and effect of the car rental business of the tourism industry.

Churchill, and Peter (1980, p. 538) concluded that "…although measures in social sciences are never universally valid for all applications and in fact, the development of valid measures is a never-ending process, better measurement can only increase the quality of marketing research and theory". In echoing their recommendation and considering the lack of previously developed scale exclusively for car rental services, it was deemed valuable to develop a measurement scale in accordance with this procedure (Caro, & Garcia, 2007; Chu, & Murrmann, 2006; Toncar et al. 2006; Karatepe, Yavas, & Babakus, 2005). In other words, this paper presents the development of a new, tailor-made scale to measure service quality perceptions in car rental services.

Methodology

Churchill (1979) stresses the need for constructing a sound conceptual specification while developing a new measurement scale. In this sense, researchers benefit from the existing scales as a starting point in their development efforts such as emotional labor (Chu, & Murrmann, 2006), travel agency services (Millan, & Esteban, 2004), service quality perceptions (Caro, & Garcia, 2007) and SERVQUAL (Frochot, & Hughes, 2000). Due to the lack of a scale, qualitative research was carried out to identify the factors that determine the service quality perceptions of car rental customers.

Using a judgmental sampling approach, 23 in-depth interviews with tourists visiting North Cyprus were conducted in February and March 2006. Judd, Smith and Kidder (1991, p. 136) define judgmental or purposive sampling as "picking cases that are judged to be typical of the population in which we are interested, assuming that errors of judgment in the selection will tend to counterbalance one another." In case of present research, the tourists who were in hotel lobbies and around car rental agencies were approached by the interviewers. Respondents were asked open-ended questions about their expectations, criteria for service and past experiences with car rental services. Moreover, additional ad-hoc questions were asked to clarify the given responses and enhance the productivity of the interview process. Respondents were selected from three tourist destinations: Kyrenia, Nicosia, and Famagusta. Each taped interview lasted between 15 and 20 minutes. No incentives were given to respondents.

Content analysis was used where researchers listened to the recorded interviews and created transcripts of all answers. Generative coding was used to develop categories of concepts and themes that emerged from the transcripts (Hair, Anderson, Tatham, & Black, 1995). To form statements, coding categories were defined and labeled; then, relevant information was classified into the categories. Reliability of the coding was measured via cross-coded inter-rate reliability (Guttman, 1954). To attain a controllable number, statements that were mentioned four or more times were deemed acceptable (Guttman, 1954; Judd et al., 1996). Subsequently, researchers generated

61 distinctive statements for the content categorization. In order to form the factors, statements with similar characteristics were grouped. The grouping process was carried out individually and collectively, resulting in seven factors. Initial purification of the scale started with the assessment of content and face validity by a panel of experts, as recommended by Caro, and Garcia (2007). Two car rental owners and three academic experts reviewed 61 items. Experts suggested eliminating twelve items and rewording other items. No recommendation was made concerning factor labeling.

Analysis and results

QUANTITATIVE RESEARCH: FIRST STAGE PURIFICATION

The resulting 49 items were transformed into a pilot questionnaire and used to collect data for first stage purification. This stage served to confirm the purpose of the newly developed scales' psychometric properties (Chu, & Murrmann, 2006). A five-point Likert type scale ranging from (1) 'strongly disagree' to (5) 'strongly agree' was used. The sample of the pilot study consisted of tourists staying in four- and five-star hotels in the Kyrenia region of North Cyprus during March 2006 with non-probability judgmental sampling technique. In total, 320 questionnaires were distributed to respondents and they were requested to fill out the questionnaires designed for self-completion.. Of those, 213 useful questionnaires were obtained, resulting in a response rate of 66.6%. This number is close (4.35 times) to the adequate rule of thumb sample size of five folds the number of items (Nunnally, & Bernstein, 1994). More than half (54.9%) of the respondents were males between the ages of 18 and 37 (40.8%) and had a minimum of an undergraduate degree (44.1%). Moreover, the majority of the respondents were Turkish (74.2%), and more than one third (34.3%) had rented at least three cars in the past two years.

Churchill (1979) and Parasuraman et al. (1988) suggest that the purification of an instrument begins with the computation of Cronbach's alpha coefficient, item-to-total correlation, and exploratory factor analysis (EFA). The value of the coefficient alpha ranged from 0.43 to 0.78 for seven factors, which necessitated the removal of some items to improve the alpha values. Nunnally (1970) recommends omission of the items (<0.30) with low corrected item-to-total correlations. Factor loadings obtained from EFA with Varimax rotation were further considered to test the factors and eliminate the poor performing items. As suggested by Chu, and Murrmann (2006, p. 1183), after each omission "…alpha values were recomputed for the remaining items and the new corrected correlations were evaluated for further deletion of items." A total of 25 items were deleted from the instrument (see Table 1). Factors and item numbers of RENTQUAL scale at this stage were as follows; security (3 items), handing over (4 items), policy (3 items), comfort (4 items), ergonomics (3 items), delivery (4 items), and accessibility (3 items).

Table1

**RESULTS OF PILOT STUDY - SCALE ITEMS, CORRECTED ITEM-TO-TOTAL CORRELATIONS,
FACTOR LOADINGS, CRONBACH'S ALPHA SCORES** (n=213)

Items	ITTC*	Factor loadings						
		F1	F2	F3	F4	F5	F6	F7
The car should have air condition	0.490	0.837						
The seats of the car should be comfortable	0.439	0.776						
The cars' interior should be spacious	0.408	0.685						
The car should have electrical windows	0.359	0.555						
Company should deliver the car to where I want	0.523		0.758					
Company should allow me to return the car to where I want	0.522		0.754					
Employee of the company should inform me about the cars' functions and accessories	0.521		0.635					
Employee of the company should inform me about previous accidents of the car, if any	0.496		0.677					
Car should be very clean when I receive it	0.452			0.815				
Car should have enough gas when I receive it	0.440			0.713				
Local maps and tourist information should be provided when I receive the car	0.390			0.635				
Additional information about the location should be provided while receiving the car	0.336			0.572				
Car should have no technical problem	0.451				0.873			
Car should have necessary safety features like ABS, Airbags…	0.367				0.734			
Car should have insurance and collusion damage waiver	0.340				0.710			
Car should have ergonomic features for customers with disabilities or special needs	0.501					0.820		
Car should have manual and automatic gear option	0.490					0.794		
Car should have hydraulic or electrical steering system	0.439					0.631		
Company should easily be accessible	0.533						0.857	
Employee of the company should be reachable at anytime	0.492						0.733	
Employee of the company should be available to meet with me in case of extraordinary situations like accident, technical problem…	0.343						0.591	
I should be allowed to choose method of payment	0.370							0.653
Company should allow one day renting	0.345							0.636
Company should be tolerant towards unlikely delays in the return of the car	0.302							0.560
Cronbach's α		0.78	0.63	0.68	0.67	0.84	0.79	0.47
Variance explained (%)		27.44	9.37	8.46	6.25	5.7	5.18	4.44
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.72							
Bartlett's test of sphericity (significance level)		0.000						
Eigenvalue		6.59	2.25	2.03	1.5	1.38	1.24	1.07

Note: * Item-to-total correlations, Overall Cronbach's α = 0.743, Approx. χ^2 = 1038.07, df = 276, total variance explained (%) = 66.84,

F1 = comfort, F2 = delivery, F3 = handing over, F4 = security, F5 = ergonomics, F6 = accessibility, F7 = policy.

QUANTITATIVE RESEARCH: INITIAL SCALE

Second stage purification of the RENTQUAL scale was carried out with a new data set. For this purpose, a modified version of the pilot instrument was used. The sample of the main study consisted of tourists staying in three, four and five-star hotels in the Kyrenia, Famagusta and Nicosia regions of North Cyprus during May and June 2006 with non-probability judgmental sampling technique. In total, 1000 questionnaires were distributed to respondents and they were requested to fill out the questionnaires in a self-administered manner. Of those, 726 questionnaires were returned and found to be useful (72.6% response rate).

Table 2
DEMOGRAPHIC BREAKDOWN OF THE FINAL STAGE RESPONDENTS (n= 726)

	N	%
Age		
18-27	366	50.4
28-37	157	21.6
38-47	114	15.7
48 and above	89	12.3
Gender		
Female	190	26.2
Male	536	73.8
Education		
Secondary / High School	268	36.9
Vocational School	124	17.1
Undergraduate / Graduate	334	46.0
Country of origin		
Turkey	449	61.9
Cypriot	112	15.4
Other	165	22.7
Motivation of travel		
Holiday / relaxation	393	54.1
Professional / business travel	169	23.3
Visiting friends / relatives	109	15.0
Other motivations	55	7.6
Frequency of renting car in last 2 years		
None	42	5.8
1 - 3 times	418	57.6
4 - 6 times	211	29.0
More than 6 times	55	7.6

As presented in Table 2, an overwhelming majority (73.8%) of the respondents were males between the ages of 18 and 37 (72.0%) with an undergraduate or graduate degree (46.0%). The majority of the respondents were Turkish (61.9%) and visiting North Cyprus for holiday (54.1%). More than half (57.6%) had rented one to three cars in last two years. Only a few respondents (5.8%) had not rented a car n the past two years. In order to further refine the initial scale, the purification procedure followed the same steps as those used in the first stage, but this time confirmatory factor analysis (CFA) was used (Nunnally, & Bernstein, 1994; Churchill, 1979). The value of the coefficient alpha ranged from 0.42 to 0.78. The results of CFA established seven factors. Nunnally (1978) suggest a factor loading of 0.40 as the cutoff value for new scale development studies. As can be seen from Table 3, most of the items had factor loadings greater than Nunnally's (1978) recommendation, except for three items which were omitted from the final scale.

Table 3 also lists the measurement error, t-values, and coefficient of determination (R^2) scores. Millan, and Esteban (2004) report R^2 scores as a relative measure-of-fit for each structural equation. Because Hair et al. (1995) recommend the deletion of items whose R^2 scores are lower than 0.50, 'the car should have electrical windows' was deleted from the comfort factor ($R^2 = 0.45$); 'the employee of the company should inform me about previous accidents of the car, if any' was deleted from the delivery factor ($R^2 = 0.42$); and 'additional information about the location should be provided while receiving the car' was deleted from the handing over factor ($R^2 = 0.43$).

Table 3

CONFIRMATORY FACTOR ANALYSIS OF INITIAL SCALE

Factors and items	Factor loading		Measurement error		R^2
	λ_i	t	E_i	t	
Factor 1. Comfort (COM) (α = 0.757)					
The car should have air condition	0.66	6.80	0.49	5.42	0.57
The seats of the car should be comfortable	0.74	7.46	0.46	4.95	0.54
The cars' interior should be spacious	0.78	6.16	0.91	5.76	0.60
The car should have electrical windows	0.74	6.94	0.58	5.34	0.45
Factor 2. Delivery (DEL) (α = 0.782)					
Company should deliver the car to where I want	0.50	5.25	0.51	5.66	0.64
Company should allow me to return the car to where I want	0.41	3.55	0.79	6.35	0.57
Employee of the company should inform me about the cars' functions and accessories	0.58	6.18	0.42	4.91	0.55
Employee of the company should inform me about previous accidents of the car, if any	0.35	4.87	0.29	5.86	0.42
Factor 3. Handing over (HAN) (α = 0.701)					
Car should be very clean when I receive it	0.63	6.58	0.43	4.95	0.68
Car should have enough gas when I receive it	0.71	7.73	0.29	3.47	0.63
Local maps and tourist information should be provided when I receive the car	0.46	4.01	0.85	6.32	0.54
Additional information about the location should be provided while receiving the car	0.40	4.93	0.40	6.02	0.43
Factor 4. Security (SEC) (α = 0.752)					
Car should have no technical problem	0.80	13.43	0.40	4.70	0.69
Car should have necessary safety features like ABS, Airbags…	0.43	5.97	0.38	6.77	0.63
Car should have insurance and collusion damage waiver	0.76	6.58	0.50	6.50	0.56
Factor 5. Ergonomics (ERG) (α = 0.726)					
Car should have ergonomic features for customers with disabilities or special needs	0.84	10.07	0.22	5.68	0.62
Car should have manual and automatic gear option	0.74	8.41	0.34	4.92	0.57
Car should have hydraulic or electrical steering system	0.68	7.50	0.43	5.64	0.52
Factor 6. Accessibility (ACC) (α = 0.728)					
Company should easily be accessible	0.72	9.94	0.17	3.99	0.65
Employee of the company should be reachable at anytime	0.65	6.27	0.38	4.21	0.63
Employee of the company should be available to meet with me in case of extraordinary situations like accident, technical problem…	0.47	3.84	0.84	6.84	0.54
Factor 7. Policy (POL) (α = 0.426)					
I should be allowed to choose method of payment	0.51	4.81	0.48	4.92	0.43
Company should allow one day renting	0.32	3.24	0.57	6.29	0.52
Company should be tolerant towards unlikely delays in the return of the car	0.36	3.86	0.80	5.99	0.51

Note: All loadings are significant at p < 0.01

QUANTITATIVE RESEARCH: FINAL SCALE

The final stage for scale development was to reevaluate the factor structure of RENT-QUAL using CFA with maximum likelihood estimation using LISREL 8.54 (Jöreskog, & Sörbom 2003). Although the CFA results for the initial RENTQUAL scale comprised 21 items under 7 factors and generated a reasonable fit (CFI = 0.92, IFI = 0.92, NNFI = 0.91), there was still room for further improvement of the fit indices (GFI = 0.89, AGFI = 0.85, NFI = 0.90, RFI = 0.89, RMSR = 0.05, RMSEA = 0.072). The data were subsequently subjected to a purification process, which led to deletion of few items on the policy factor and, then, subsequent deletion of the entire factor. As a result, the final RENTQUAL scale consisted of 18 items loaded onto six factors (Table 4).

Table 4
CONFIRMATORY FACTOR ANALYSIS OF FINAL SCALE

Factors and items	Mean scores	Factor loading		Measurement error		R^2
		λ_i	t	E_i	t	
Factor 1. Comfort (α = 0.758)	4.04					
The car should have air condition	4.14	0.81	25.70	0.15	4.91	0.81
The seats of the car should be comfortable	4.04	0.71	20.85	0.40	12.74	0.56
The cars' interior should be spacious	3.95	0.68	15.78	0.34	17.11	0.74
Factor 2. Delivery (α = 0.745)	4.44					
Company should deliver the car to where I want	4.45	0.74	25.65	0.18	6.73	0.76
Company should allow me to return the car to where I want	4.37	0.60	16.04	0.44	16.64	0.66
Employee of the company should inform me about the cars' functions and accessories	4.50	0.56	19.32	0.32	14.31	0.55
Factor 3. Handing over (α = 0.709)	4.22					
Car should be very clean when I receive it	4.28	0.78	25.93	0.20	9.28	0.73
Car should have enough gas when I receive it	4.21	0.75	26.24	0.19	8.80	0.75
Local maps and tourist information should be provided when I receive the car	4.17	0.61	18.40	0.42	16.87	0.52
Factor 4. Security (α = 0.752)	4.54					
Car should have no technical problem	4.55	0.75	23.07	0.14	7.82	0.70
Car should have necessary safety features like ABS, Airbags…	4.48	0.68	20.23	0.27	12.34	0.63
Car should have insurance and collusion damage waiver	4.58	0.52	16.23	0.31	16.27	0.57
Factor 5. Ergonomics (α = 0.746)	3.98					
Car should have ergonomic features for customers with disabilities or special needs	4.08	0.78	21.66	0.35	9.58	0.74
Car should have manual and automatic gear option	4.03	0.70	18.33	0.38	14.02	0.67
Car should have hydraulic or electrical steering system	3.83	0.66	17.12	0.32	15.11	0.62
Factor 6. Accessibility (α = 0.728)	4.40					
Company should easily be accessible	4.52	0.79	18.20	0.14	16.61	0.81
Employee of the company should be reachable at anytime	4.38	0.76	27.21	0.34	6.31	0.62
Employee of the company should be available to meet with me in case of extraordinary situations like accidents, technical problems…	4.30	0.66	22.33	0.31	13.38	0.59

Note: Overall α = 0.862, all loadings are significant at 0.01 level.

The final RENTQUAL scale provided reasonable fit for the data (χ^2 = 564.68, p = 0.00, CFI = 0.94, IFI = 0.94, NFI = 0.93, NNFI = 0.93, GFI = 0.92, AGFI = 0.89, RFI = 0.91, RMSR = 0.04, RMSEA = 0.072). Table 4 lists the factor loadings, measurement error, t-values and R^2 scores. Detailed analysis of Table 4 shows that all factor loadings are statistically significant and have a value higher than the recommended .40 level (Gerbing, & Anderson, 1993; Hair et al., 1995; Jöreskog, 1993; Millan, & Esteban, 2004).

Table 5
**GOODNESS OF FIT MEASURES COMPARISON
OF RENTQUAL SCALES AT EACH STAGE**

	Pilot scale	Initial scale	Final scale
Absolute fit measures			
Value of the χ^2 and significance level	1,102.70 ($p = 0.00$)	564.68 ($p = 0.00$)	417.55 ($p = 0.00$)
Noncentrality parameter (NCP)	871.70	466.68	186.55
Goodness of fit index (GFI)	0.73	0.89	0.92
Root mean square residual (RMSR)	0.11	0.05	0.04
Root mean square of approximation (RMSEA)	0.094	0.072	0.071
Expected cross-validation index (ECVI)	6.04	1.71	0.92
Incremental fit measures			
Adjusted goodness of fit index (AGFI)	0.64	0.85	0.89
Normed fit index (NFI)	0.76	0.90	0.93
Non-normed fit index (NNFI)	0.83	0.91	0.93
Comparative fit index (CFI)	0.86	0.92	0.94
Incremental fit index (IFI)	0.86	0.92	0.94
Relative fit index (RFI)	0.72	0.89	0.91
Parsimony fit measures			
Normed χ^2 (χ^2 / df)	1.81	4.71	4.77
Parsimony goodness of fit index (PGFI)	0.56	0.68	0.75
Parsimony normed fit index (PNFI)	0.64	0.69	0.79
Akaike information criterion (AIC)	1,240.70	666.68	555.55
Critical N (CN)	56.48	178.45	199.98

Table 5 is a replica of Millan, and Esteban's (2004, p. 542) comparison of initial and final versions of their multiple-item scale measuring customer satisfaction in travel agencies services in Spain. More recently, Chu, and Murrmann (2006) followed a similar analysis to compare alternative models with their HELS scale. By following their steps, various goodness-of-fit measures were listed in order to create a comparison base for the three stages of the newly developed RENTQUAL scale (Table 5). More specifically, absolute, incremental, and parsimony fit measures of pilot (n=213), initial and final scales (n=726) are provided.

The criteria for assessing the indices were established following the recommendations of previous researchers (Aaker, & Bagozzi,1979) (Normed χ^2 = χ^2/df, higher is better, p closer to 0.00), Jöreskog (1993) and Jöreskog, and Sorbom (1996) (GFI and AGFI > 0.90, RMSEA and RMSR = values closest to zero taken as good fit), Nunnally, and Bernstein (1994) (NFI and NNFI > 0.90), Widaman, and Thompson (2003) (IFI and RFI > 0.90), Kelloway (1998) and Chow (1987) (NCP and ECVI = values closest to zero taken as good fit), Kaplan (2000) (AIC = model with lowest score shows better fit, Critical N = critical number of observation) Gerbing, and Anderson (1993), (CFI = values closest to zero taken as good fit), Tanaka (1993) (PGFI and PNFI = model with higher score shows better fit).

The overall evaluation of goodness-of-fit shows a significant increase from the pilot to initial and initial to final scales. Compared to the pilot scale results, there is a significant improvement in terms all fit measures (for instance GFI, AGFI, NFI and CFI leaped from 0.73, 0.64, 0.76 and 0.86 to 0.89, 0.85, 0.90 and 0.92 respectively). This can be explained by the radical increase in sample size. Although the resulting scores might indicate an acceptable fit, there was still room for improvement. Thus, the systematic deletion of low-performing items was necessary to improve the fit measures. Omission of one factor and three items resulted in moderate increases in fit measures (for instance GFI, AGFI, NFI and CFI leaped from 0.89, 0.85, 0.90 and 0.92 to 0.92, 0.89, 0.93 and 0.94 respectively).

In order to provide support for discriminant validity, Pearson product-moment correlations among the study factors were computed. For this purpose, composite scores for each factor were calculated by averaging scores representing that dimension. Table 6 shows the significant correlations among the factors. The highest correlation occurred between delivery and handover factors (0.65); conversely, the lowest correlation was found between delivery and comfort factors (0.37). Bauer, Falk, and Hammerschmidt (2006) recently assessed discriminant validity using the conservative Fornell/Larcker test recommended by Fornell, and Larcker (1981), who argue that shared variance among any two constructs should be less than the average variance extracted (AVE) of each factor (Table 6). Means and standard deviations of dimensions composite scores were also calculated. Overall, these results provide additional support for the discriminant validity of the RENTQUAL scale (Anderson, & Gerbing, 1988).

Table 6

CONSTRUCT CORRELATION MATRIX (Φ), MEANS AND STANDARD DEVIATIONS OF THE RENTQUAL SCALE

Factors	COM	DEL	HAN	SEC	ERG	ACC
Comfort (COM)	0.87 *					
Delivery (DEL)	0.37	0.84				
Handing over (HAN)	0.46	0.65	0.81			
Security (SEC)	0.49	0.58	0.57	0.89		
Ergonomics (ERG)	0.50	0.49	0.64	0.60	0.76	
Accessibility (ACC)	0.50	0.49	0.64	0.60	0.60	0.74
Means	4.04	4.44	4.22	4.54	3.98	4.40
Standard Deviations	0.77	0.62	0.61	0.57	0.72	0.66

Note: Composite scores are calculated by averaging items representing that factor.
Responses range from 1 to 5. Higher scores indicate favorable responses.
*AVE shown as italic on diagonal. All correlations are significant at the p < 0.001.

To sum up, the RENTQUAL scale shows good fit when assessed as a whole; in general, the items show convergent validity and reliability in their underlying factors (Tables 4 and 5). Final version of the RENTQUAL scale has 18 items under six factors. Table 6 lists the mean scores for each factor, given italic. Mean scores were calculated by averaging respondent ratings on a five-point Likert scale, ranging from 1 = 'strongly disagree' to 5 = 'strongly agree'. Following section provides discussion of these findings.

Discussion and conclusions

This paper aimed to develop a measurement scale for evaluating rental car service quality based on the steps recommended by Churchill (1979) and Parasuraman et al. (1988). In-depth interviews were conducted to develop items, and a quantitative study was employed to purify the scale items as well as to examine dimensionality, reliability, factor structure and validity. Finally, an 18-item RENTQUAL scale with six factors emerged (see Appendix).

Analysis of the findings revealed that security, with the mean score of 4.54 out of 5.00, was the most important factor. Furthermore, respondents ranked the need for insurance as the most important security item with mean score of 4.58. This result is consistent with findings in the destination marketing literature (Law, Cheung, & Lo, 2004). The second most important factor was delivery procedure of the car, mean score is 4.44. Respondents stated that they need technical instructions about the car during the delivery, mean score 4.50. Cronin, and Taylor (1992) underline the importance of delivery in overall service quality perception. Rental car return was also important. Receiving a clean car was the most important item under this factor. A careful comparison between these return and delivery shows that delivery is more process-related; replication of the return factor is needed to further assess the robustness. In the light of this finding, management/owners should ensure that the condition of car rentals, services offered to the tourists in delivery activities on time and as promised. In addition, once a desired   rent a car service quality is provided to satisfy the expectations of tourists, efforts should be exerted to maintain it over repeated service encounters, since satisfaction over time result in perception of service quality (Parasuraman, Berry, & Zeithaml, 1986).

The next highest factor appeared to be the accessibility, in other words respondents reported that they want to contact the car rental company without having problem, mean score 4.40. More specifically, they want to be able to reach the company and its employees at any time (mean score 4.52). This finding corresponds with the result of previous literature; that is, many researchers have found a significant relationship between accessibility and service quality perception and post-purchase attributes (Parasuraman et al. 1988; Johnston, 1995).

Handing over the rented car found to be the next most important factor (mean score 4.22). Receiving clean car reported to be the most important item under this factor with mean score 4.28. Although meaning may sound close to the delivery factor, yet items under this factor are differ from delivery by being more tangible. A careful comparison between these two factors shows that delivery is more process related while handing over about the condition of the rented car (cleanliness), having enough petrol and inclusion of local maps or tourist information in the car. Although the factor successfully survived from the harsh purification stages, it calls for replication to further assess the robustness.

Comfort of the rental car was one of the least important factors (mean score 4.04). The reason for this might be that most companies purchase new models to maintain

a competitive edge; thus, most cars are comfortable, which increases expectations. Among comfort items, the availability of air conditioning was most important feature, (mean score 4.14) which is not surprising considering the hot climate of Cyprus. Ergonomics judged to be the least important factor while renting car (mean score 3.98). Having special features for customers with special needs was the most important item in this category. Ergonomic measures can be used to satisfy service quality expectations.

In the light of these findings, owners should ensure that the condition of car and the delivery services offered activities are as promised. In addition, efforts should be exerted to maintain satisfactory service over repeated encounters (Parasuraman, Berry, & Zeithaml, 1986). With the growth in international tourism and interest in quality improvement and assurance models and measures, the quality of rent a car services look more promising in the future than present. Concerning the role and the importance of these services regarding their capacity and contribution to the tourism phenomena, there are a very few number of studies that report empirical findings. Most of these studies are either conceptual or qualitative in nature and are focused on the surfaced parts of the service industry such as banks, hotels, insurance with limited emphasis on the international tourist's demand factors. However, it would not be an exaggeration if it is suggested that a destination's success in the eye of the tourist is totally depends on both core and sub industry's performances. This study contributes to the conceptual and methodological advancement of service quality and the rental car industry by developing RENTQUAL, a scale to measure the service quality perceptions of the tourists.

Findings of this research should be interpreted in light of the following limitations. There continues to be debate on gap scores that are perception minus expectation (Parasuraman et al., 1986, 1991) or just perceptions (Cronin, & Taylor, 1992). Having the respondents fill out two questionnaires (before and after car rental) was not possible due to budgetary and follow-up constraints. As Carman (1990) cogently discussed both; expectation and perception measures most of the time cannot be used simultaneously. Regarding the limitations of the study in this respect, only the perception items were conducted.

After purifying their HISTOQUAL scale, Frochot, and Hughes (2000) analyzed possible relations between scale factors and overall quality perception, revisit intention (again) and cost of service (price). Similarly, Karatepe, Yavas, and Babakus (2005) assessed the relationships between newly developed bank service quality scale, customer satisfaction and purchase intention. Second limitation of this paper is only service quality perceptions were studied, so inclusion of dependent factors like overall perceived quality (Brady, & Cronin, 2001), customer satisfaction (Nash, Thyne, & Davies, 2006), repurchase intention (Janga, & Feng, in press), and word-of-mouth intention (Yuksel, Kilinc, & Yuksel, 2006) can provide further insights. Third limitation is the use of judgmental sampling technique as one of the non-probabilistic sampling

techniques. Perhaps the use probabilistic techniques would allow for more generalized results. As a closing note, replication studies using a larger sample size elsewhere would be fruitful for further generalizations of the newly developed RENTQUAL scale.

Appendix

RENTQUAL Questions

1. The car should have air conditioning.

2. The seats of the car should be comfortable.

3. The car interior should be spacious.

4. The company should deliver the car where I want.

5. The company should allow me to return the car where I want.

6. Employees of the company should inform me about the car's functions and accessories.

7. The car should be very clean when I receive it.

8. The car should have enough gas when I receive it.

9. Local maps and tourist information should be provided when I receive the car.

10. The car should not have any technical problems.

11. The car should have the necessary safety features like anti-lock brakes and airbags.

12. The company should provide insurance including collision damage.

13. The car should have ergonomic features for customers with disabilities or special needs.

14. The car should have manual and automatic gear options.

15. The car should have a hydraulic or electrical steering system.

16. The company should be easily accessible.

17. Employees of the company should be reachable at any time.

18. Employees of the company should be available to meet with me in case of extraordinary situations like accidents or technical problems.

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