

From SERVQUAL to HOTSPERF: Towards the Development and Validation of an alternate Hotel Service Quality Measurement Instrument

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Abstract

By adopting and adapting the SERVQUAL instrument and factoring in aspects of SERVPERF, the proposed instrument (HOTSPERF) was developed and validated through a survey using a self-administered questionnaire, conducted among a systematic sample of 1200 guests from a cluster of graded Ethiopian hotels. The response from 415 guests was subject to Exploratory Factor Analysis, which resulted in the 25 items of the HOTSPERF instrument loading onto two service dimensions which were labelled “Tangibles” and “Intangibles” and these dimensions produced a reliability (Cronbach Alpha) co-efficient of .096 and .962 respectively. Confirmatory Factor Analysis using maximum likelihood estimation indicated that the standardized factor loading (SFL) values for each of the 25 observed variables compared very well to their corresponding latent variable (greater than 0.90 with significance at $p < .001$, and had a 95% confidence interval that ranged from 0.88 to 1.11), and the Chi-Square/degree of freedom was 3.2 at $p < .001$. Thus, HOTSPERF was found to be both a reliable and valid instrument to measure customers’ perceptions of hotel service quality.

Keywords: service quality, hotel, SERVQUAL, HOTSPERF

Introduction

To measure service quality, Parasuraman, Zeithaml and Berry (1985) developed a multi-attribute quantitative model called SERVQUAL, which has been widely used by many scholars and practitioners in studying service quality (Boon-Liat and Md. Zabid Abdul, 2013), (Siddiqi, 2011, Barabino, Deiana and Proto, 2012, Mokhlis, 2012, Singh and Thakur, 2012, Mauri, Minazzi and Muccio, 2013, Moisescu and Gica, 2013, Nayak, 2013, Kim-Soon, Rahman and Visvalingam, 2014, Wu, Huang and Chou, 2014). According to Hyun Soon, Zhang, Dae Hyun, Chen, Henderson, Min and Haiyan (2014:760), SERVQUAL measures “individual quality attributes of the service quality rather than measuring the overall perception of the service offerings or measuring the indirect service quality through customer satisfaction”. Furthermore, the SERVQUAL measurement is an attribute-based evaluation of service quality which lists the

service attributes and then measures them (Auka, Bosire and Matern, 2013) in a seven point scale from 1 (strongly disagree) to 7 (strongly agree).

In spite of being a widely used and cited model in the literature on services marketing, SERVQUAL has been criticized from both a practical and theoretical facets (Cronin and Taylor, 1994, Cheng and Rashid, 2013). Many researchers and academicians also opted to reproduce and rebut the SERVQUAL's conceptualization and structure (Blešić, Tešanović and Psodorov, 2011). In light of the above, this article reports the development and validation of a modified SERVQUAL instrument to measure service quality in the hotel industry in a developing country.

Literature Review

The main criticism of SERVQUAL was its length, predictive power and more importantly its validity (Cronin and Taylor, 1994, Cheng and Rashid, 2013). This was refuted by the original authors in that the model has distinctive sections although interrelated (Rahman, Khan and Haque, 2012). Olgun, Dortyol, Zührem and Gulmez (2013) also commented on the applicability and the validity of the instrument, whose main objective was that most firms/industries would need to add new items or factors to make it relevant for their particular circumstances. Cronin and Taylor (1994) established that the scales measuring the service quality were inconsistent and varied in different industries. This was seen as a limitation of the instrument and Parasuraman, Berry and Zeithaml (1994a) recommended that only minor adjustments be made when necessary by different industries. In addition, organizations which had different types of services needed to measure each service separately (Torres, 2014). There were also concerns over the measurement of the expectation of customers as the method was ineffective in practice (Yein Ping, Suki and Suki, 2012). The method was in question as new customers may not have expectations as they have had no previous experience (Moisescu and Gica, 2013). However, this argument may be questionable as hotel customers' behavior is changing and on average, a potential hotel customer reviews at least ten hotels, and online travel agents' websites, before making a reservation to a hotel (PhoCusWright, 2011).

According to Cronin and Taylor (1992; 1994), SERVQUAL was considered as an instrument which was inappropriate to measure service quality because it was conceptualized and operationalized inadequately. This was also pointed out by Teas (1993) as cited by Cronin and Taylor (1994), who was concerned about its validity. In contrast, Parasuraman et al. (1994a) reasoned that the worries expressed by Cronin and Taylor (1994) and Teas (1993) as cited by Cronin and Taylor (1994) regarding the validity and inconsistencies were unwarranted. According to Hoffman and Bateson (2010), the power of the SERVQUAL measurement model to predict the intention or expectation of customers was less than the ability of the method which measures only the customers perception of services. Cronin and Taylor (1992:234) indicated that service quality is "an antecedent of consumer satisfaction and that consumer satisfaction exerts a stronger influence on purchase intentions than service quality does." The aforementioned researchers' suggestion was that the satisfaction of customer was a more important factor for improvement than focusing on the quality of service.

Furthermore, there was reluctance on the part of managers to adopt the SERVQUAL measurement model for their firms due to the length of the questionnaire and "unnecessary" repetition (Hyun Soon et al., 2014). For other researchers, like Cronin and Taylor (1992) and Brady and Cronin (2001), measuring only the customer's perception of service quality is more applicable and appealing. Parasuraman et al. (1994b) however, contended that assessing the gap between the customer's service expectations and actual experience was more valuable for improvement of the service.

Cronin and Taylor (1994) suggested that the measurement of service quality could be accomplished by using only the perception of customer experience rather than measuring the gap between expectation and actual experience of the service by customers. The aforementioned researchers promoted the use of the SERVPERF measurement model which is a modified version of SERVQUAL, and which only is used for the assessment of perceived performance using the 7 point scale, rather than the gap between expectation and performance. This new method of measuring perceived services resulted in a reduction of the items on the questionnaire as there were only twenty two items, leaving out the 22 questions on customers' expectations, thus, giving the instrument more predictive power than the original SERVQUAL.

Parasuraman et al. (1994a) responded to Cronin and Taylor (1992) by insisting on the superior quality of SERVQUAL as a measuring tool for service quality. Due to its simplicity there was widespread preference for the new instrument; however, according to the developers of the SERVQUAL instrument, this preference didn't necessarily translate into better service quality measurement (Parasuraman, Zeithaml and Berry, 1994b). The developers of the SERVQUAL measurement instrument also claimed that much richer information was provided by their model, as it enabled managers to accurately diagnose and pinpoint the weaker aspects of service quality.

Cronin and Taylor (1994), however, asserted that SERVPERF was more practically applicable. They argued that measuring the quality of service in terms of performance using the SERVPERF instrument provided an index of service quality perception over a time period and among different categories of customers. Despite the differences in opinion, studies by Korda and Snoj (2010), and Nadiri, Kandampully and Hussain (2009), found that the difference between the two instruments regarding prediction was negligible. However, Schneider and White (2004) recommended that measuring both perception and expectation as an indicator of service quality provided research and practical benefits. Practically it would indicate where improvement needs to be made, and the researcher would be able to follow trends over time.

Most of the studies to measure service quality in the hospitality industry used the SERVQUAL, or a modified version thereof (Narangajavana, 2007). Rahaman, Abdullah and Rahman (2011) were supportive of the use of SERVQUAL due to its simplicity, relatively lower cost, and provision of information on marketing tailored to the industry and its comparability across different firms in the same sector.

Tsang and Qu (2000) conducted a study in the hospitality industry, which used the SERVQUAL model with the original five dimensions however; it was shown that this instrument differed from the original model in its construction. To measure the Taiwanese Hot Spring hotels' service quality, Hsieh, Lin and Lin (2008) used the SERVQUAL measurement dimensions. Albacete-Saez, Fuentes-Fuentes and Lloréns-Montes (2007) extended the SERVQUAL model by developing scales that catered for the rural tourist lodgings. By using Confirmatory Factor Analysis, they came up with five factors namely, complementary offer, personnel response, tourist relations, empathy and tangible elements.

Stevens, Knutson and Patton (1995) developed a modified version of SERVQUAL, named LODGSERV, which measures the expectations of hotel guests in terms of service quality using a 26 items index developed on the five dimensions of SERVQUAL. Subsequently, Stevens et al. (1995) created a different version of SERVQUAL to measure the quality of service in restaurants, which was named DINESERV. Assessment for fine-dining restaurants was attempted by Lee and Hing (1995) using SERVQUAL, which was later extended by Wong Ooi Mei, Dean and White (1999) in assessing the hospitality industry, and given a different name called HOLSERV. This new tool (HOLSERV) comprised a 27-item scale and a different

approach, by including information on the employees (appearance and behaviors), reliability, and tangibles.

Furthermore, Al-Sabbahy, Ekinci and Riley (2004) suggested the Q-sort technique to evaluate service quality in hotels and the validation of the dimensions of service quality models. Another measuring tool called Lodging Quality Index (LQI), was developed to measure service quality in the hotel industry by using tangibility, reliability responsiveness, confidence and communication dimensions which is a modified version of the SERVQUAL dimensions (Getty and Getty, 2003).

From the above, it would seem that apart from recorded objections, SERVQUAL is a useful service quality measurement tool for hotel industry. However, an alternate scale (HOTSPERF) was developed, which is a modification of the SERVQUAL and SERVPERF comprising 25 attributes to accommodate for the developmental level of hotel services, and using only five-point Likert scales to simplify the range of choices posed to the customers who respond to the various questions on the questionnaire.

Development of the HOTSPERF Instrument

Over the past few decades, hotel service quality was measured through the SERVQUAL instrument or a modification thereof. In keeping with previous studies, the researchers made some modifications to the SERVQUAL instrument to make it more relevant for the industry. The modifications were made with through consultation with relevant academics and hotel professionals in the Ethiopian hotel industry. The modification is clearly reflected through a comparison of the SERVQUAL and the proposed HOTSPERF measurement dimensions and attributes (Table 1). In summary, the HOTSPERF measurement is differentiated from the SERVQUAL or SERVPERF models due to the addition of three new attributes, rewording of the SERVQUAL/SERVPERF attributes to read positively, using a five-point Likert scale, and only two measurement dimensions, in order to be more appropriate for use in the hotel industry in a developing country such as Ethiopia.

Table 1: SERVQUAL and HOTSPERF Measurement Attributes and Dimensions

	Description of SERVQUAL Measurement Attributes	Dimensions of SERVQUAL	Description of HOTSPERF Measurement Attribute	Dimensions of HOTSPERF
1	XYZ has up-to-date equipment.	Tangible	The hotel has modern and comfortable furniture	Tangible
2	XYZ's physical facilities are visually appealing.	Tangible	The physical features are visually appealing	Tangible
3	XYZ's employees are well dressed and appear neat.	Tangible	The hotel has an attractive lobby	Tangible
4	The appearance of the physical facilities of XYZ is in keeping with the type of services provided.	Tangible	The staff uniform is neat and professional	Tangible
		Tangible	The hotel has an attractive lobby	Tangible
		Tangible	The room is clean	Tangible
		Tangible	The rooms are spacious	Tangible
		Tangible	The bathroom and toilet are hygienic	Tangible
		Tangible	The hotel provides complementary items	Tangible

			(e.g. WIFI)	
		Tangible	Materials associated with the service are visually appealing in the hotel	Tangible
5	When XYZ promises to do something by a certain time, it does so.	Reliability	The hotel provides the service at the time promised.	Intangibles
6	When you have problems, XYZ is sympathetic and reassuring.	Reliability	The staff deal with you in a caring fashion	Intangibles
7	XYZ is dependable	Reliability		Intangibles
8	XYZ provides its services at the time it promises to do so.	Reliability		Intangibles
9	XYZ keeps its records accurately.	Reliability	The hotel provides accurate information about their service	Intangibles
10	XYZ does not tell customers exactly when services will be performed. (-)	Reliability	The hotel keeps you informed about when the service will be performed	Intangibles
11	You do not receive prompt service from XYZ's employees. (-)	Responsiveness	The hotel provides prompt service to you at all times	Intangibles
12	Employees of XYZ are not always willing to help customers. (-)	Responsiveness	The staff is willing to help you when you needed	Intangibles
13	Employees of XYZ are too busy to respond to customer requests promptly. (-)	Responsiveness	The staff offer help even though you do not specifically request	Intangibles
14	You can trust employees of XYZ.	Assurance	The staff has the ability to instill confidence	Intangibles
15	You feel safe in your transactions with XYZ's employees.	Assurance	The staff make you feel safe and secured during your stay	Intangibles
16	Employees of XYZ are polite	Assurance	The staff is friendly	Intangibles
17	Employees get adequate support from XYZ to do their jobs well.	Assurance	The staff have product knowledge	Intangibles
18	XYZ does not give you individual attention. (-)	Empathy	The staff is responsive to your request	Intangibles
19	Employees of XYZ do not give you personal attention. (-)	Empathy	The staff provided personal attention to you	Intangibles
20	Employees of XYZ do not know what your needs are. (-)	Empathy	The staff have knowledge of your specific interests	Intangibles
21	XYZ does not have your best interests at heart. (-)	Empathy	The hotel has your interest at heart	Intangibles
22	XYZ does not have operating hours convenient to all their customers. (-)	Empathy		Intangibles
			The staff have the ability to in-still confidence in you	Intangibles

Source: Compiled from the SERVQUAL model (Parasuraman, 1985), SERVPERF model (Cronin and Taylor, 1994).

Methodology

Since Saunders, Lewis and Thornhill (2012) confirmed that probability sampling is most commonly associated with survey-based research, this study employed two-stage stratified cluster sampling. The hotels were used as a cluster to group the guests, as there was no list of hotel guests available. The hotels were then stratified by their star ratings. From these graded hotels, 40 hotels were randomly selected, and 30 guests in each cluster, were selected randomly during check-in at reception desks.

Blair, Czaja and Blair (2014) have established the optimum cluster size using an equation model, and although the equation often produces an optimum cluster size of 20 to 25, in this study, in order to cater for low response from some clusters, a sample of 40 clusters (hotels) were randomly selected from a sampling frame of the list of hotels under all strata. The number of hotels allocated per stratum was determined proportionally to the size of the hotels and level of occupancy and were selected randomly. In the 40 hotel selected, a random of 1200 guests were selected using systematic random sampling upon check-in at the reception. A quantitative research approach was employed; using a self-administered questionnaire, based on a modified version of the SERVQUAL (Parasuraman, Berry and Zeithaml, 1991) and SERVPERF (Cronin and Taylor, 1992) measurements named HOTSPERF was used. The SERVQUAL and SERVPERF measurement models were based on 22 service attributes that were reduced into five dimensions namely, Tangibles, Reliability, Responsiveness, Assurance and Empathy. However, the HOTSPERF had 25 items with two dimension named as Tangibles and Intangibles.

The data was analyzed using the Statistical Package for Social Science (SPSS) Version 23 and Stata Version 13.1.

Findings

Although 1200 questionnaires were distributed, only 415 usable questionnaires were received, representing a response rate of 34.6%, which was deemed more than adequate for statistical inference (Saunders et al., 2012).

Reliability and Validity of the Research Instrument

The internal consistency could be measured in so many ways but the most frequently used and the one used in this study was Cronbach's coefficient alpha (Pallant (2013) Though different levels of reliability are required depending on the nature and purpose of the scale, Nunnally (1978) recommended 0.7 as a minimum level. The Cronbach's alpha coefficients (Table 2) revealed that both of the Intangibles and Tangibles service quality measurement scales were above 0.7, indicating internal consistency of the HOTSPERF measuring scales used in this study.

Table 2: Reliability of the HOTSPERF Measurement Instrument

Measuring scales	Cronbach's Alpha	No. of Items
Intangibles	.962	15
Tangibles	.906	10

Source: Primary data

Validity

Confirmatory Factor Analysis using maximum likelihood estimation was conducted to validate the 25 service attributes of the HOTSPERF instrument.

Continues...

Table indicates that the standardized factor loading (SFL) values for each of the 25 observed variables, their standard error, significance, and confidence intervals. The SFL for all observed variables compared to their corresponding latent variable were greater than 0.90 with significance at $p < .001$, and a 95% confidence interval that ranged from 0.88 to 1.11. The Chi-Square/degree of freedom was 3.2 at $p < .001$. While all the factor loadings looked good, further tests of goodness of fit were conducted to reconfirm the aforementioned results (Kline, 2011).

Continues...

Table 3: Factor Loadings for Service Quality

TA_PQ1 <-							
	Tangibles		1	(constrained)			
	_cons	3.809639	.0467222	81.54	0.000	3.718065	3.901212
TA_PQ2 <-							
	Tangibles	.9416642	.0500706	18.81	0.000	.8435276	1.039801
	_cons	3.737349	.0447162	83.58	0.000	3.649707	3.824992
TA_PQ3 <-							
	Tangibles	1.090882	.0715447	15.25	0.000	.9506564	1.231107
	_cons	3.703614	.0494149	74.95	0.000	3.606763	3.800466
TA_PQ4 <-							
	Tangibles	1.00469	.065453	15.35	0.000	.8764046	1.132976
	_cons	3.913253	.0447491	87.45	0.000	3.825546	4.00096
TA_PQ5 <-							
	Tangibles	.9624689	.0656811	14.65	0.000	.8337363	1.091201
	_cons	3.840964	.0445297	86.26	0.000	3.753687	3.92824
TA_PQ6 <-							
	Tangibles	.9588851	.0668051	14.35	0.000	.8279494	1.089821
	_cons	3.901205	.0452698	86.18	0.000	3.812478	3.989932
TA_PQ8 <-							
	Tangibles	1.029178	.071135	14.47	0.000	.8897561	1.1686
	_cons	3.756627	.0483383	77.72	0.000	3.661885	3.851368
TA_PQ9 <-							
	Tangibles	.8841103	.0923987	9.57	0.000	.7030121	1.065209
	_cons	3.279518	.062259	52.68	0.000	3.157493	3.401543
TA_PQ10 <-							
	Tangibles	1.092398	.0795148	13.74	0.000	.9365514	1.248244
	_cons	3.737349	.0536853	69.62	0.000	3.632128	3.842571
TA_PQ11 <-							
	Tangibles	.9888508	.0659765	14.99	0.000	.8595393	1.118162
	_cons	3.619277	.0449413	80.53	0.000	3.531194	3.70736

LR test of model vs. saturated: $\chi^2(269) = 863.01$, Prob > $\chi^2 = 0.0000$

Source: Primary data

Error! Reference source not found.1, reflects the factor loadings of perception variables to the HOTSPERF measurement dimensions.

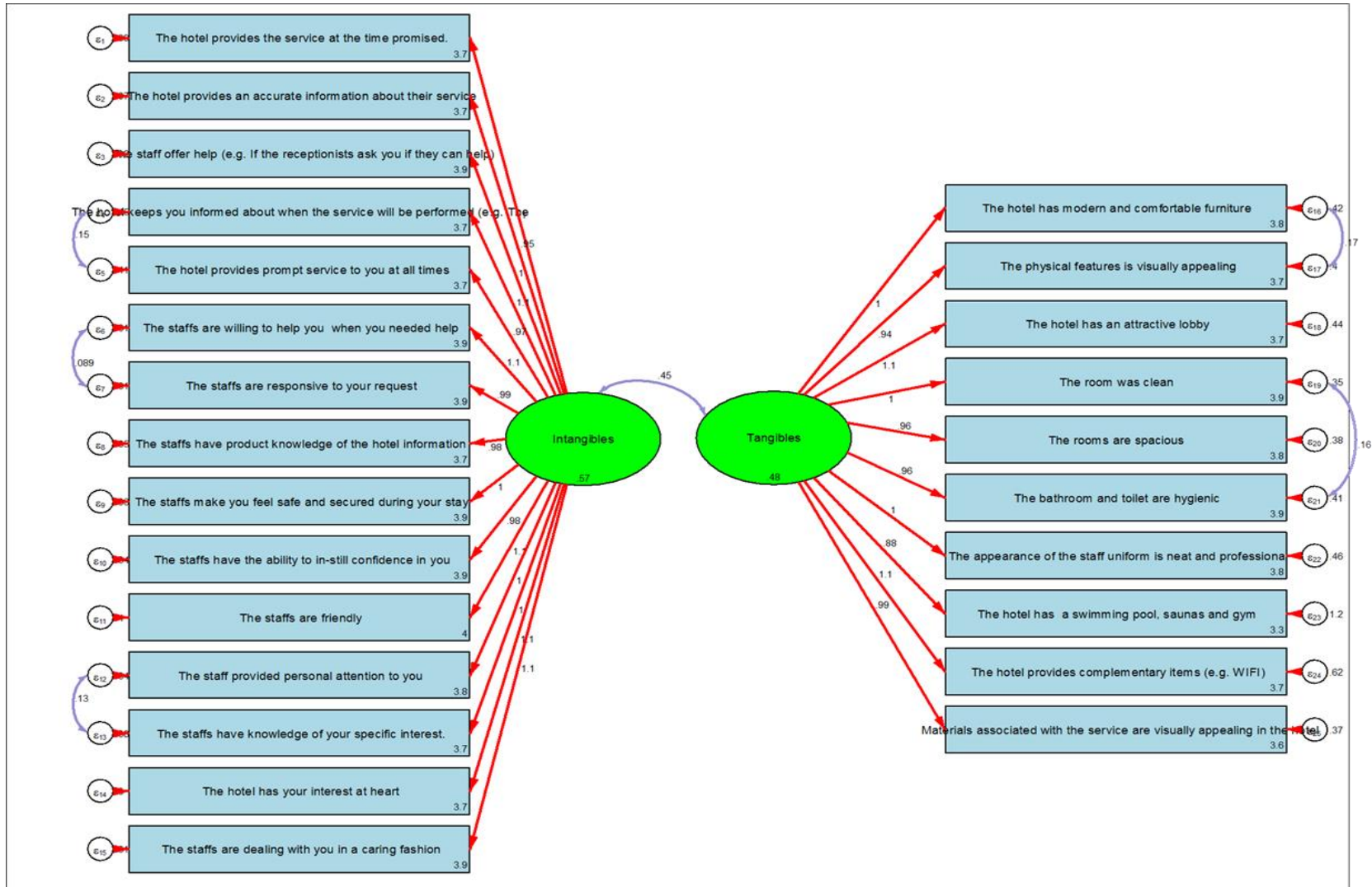


Figure 1: Confirmatory Factor Analysis of the HOTSPERF Measurement Dimensions

The result in **Error! Reference source not found.**4 showed a very good fit of the 25 service perception variables to their respective (two) dimensions of the HOTSPERF instrument. The results of RMSEA 0.073, CFI of 0.927 and TLI value of 0.919 were all in acceptable ranges. The CD value of 0.989 provided similar to R^2 value indicating a good fit of the HOTSPERF model (Kline, 2011)

Table 4: Goodness of Fit of Outcome Variables of HOTSPERF Model

Fit statistic	Value	Description
Likelihood ratio		
chi2_ms(269)	863.008	model vs. saturated
p > chi2	0.000	
chi2_bs(300)	8459.478	baseline vs. saturated
p > chi2	0.000	
Population error		
RMSEA	0.073	Root mean squared error of approximation
90% CI, lower bound	0.068	
upper bound	0.078	
pclose	0.000	Probability RMSEA <= 0.05
Information criteria		
AIC	21558.075	Akaike's information criterion
BIC	21884.366	Bayesian information criterion
Baseline comparison		
CFI	0.927	Comparative fit index
TLI	0.919	Tucker-Lewis index
Size of residuals		
SRMR	0.038	Standardized root mean squared residual
CD	0.989	Coefficient of determination

Source: Primary data

Furthermore, the overall R^2 value (0.9885994) indicated in **Error! Reference source not found.**, was a perfect value, showing suitability and a very good fit of the model. Therefore, the HOTSPERF instrument confirms the loading of the 25 variables onto the two service quality dimensions or latent variables.

Table Error! No text of specified style in document.: Goodness of Fit of HOTSPERF Model

Equation-level goodness of fit

depvars	Variance			R-squared	mc	mc2
	fitted	predicted	residual			
observed						
REL_PQ12	.9576658	.5724027	.3852631	.5977061	.7731145	.5977061
REL_PQ14	.887827	.5198926	.3679344	.5855787	.7652312	.5855787
REL_PQ15	.9254173	.6050793	.3203381	.6538448	.8086067	.6538448
RES_PQ16	1.157521	.7041537	.453367	.6083292	.7799546	.6083292
RES_PQ17	.9503034	.5394334	.41087	.5676433	.7534211	.5676433
RES_PQ18	.9515111	.6392101	.312301	.6717842	.8196244	.6717842
RES_PQ19	.8801045	.5665297	.3135749	.6437072	.8023137	.6437072
AS_PQ20	.8972797	.5462244	.3510553	.608756	.7802282	.608756
AS_PQ21	.9612077	.6018724	.3593354	.6261626	.7913044	.6261626
AS_PQ22	.8868283	.5511604	.3356679	.6214962	.7883503	.6214962
AS_PQ23	1.062738	.6614668	.4012709	.6224178	.7889346	.6224178
EM_PQ24	.9489099	.6077357	.3411742	.6404567	.8002854	.6404567
EM_PQ25	.9610684	.5808229	.3802455	.6043512	.7774003	.6043512
EM_PQ26	.9576194	.6532289	.3043905	.6821383	.8259166	.6821383
EM_PQ27	.9475047	.6359191	.3115857	.6711513	.8192383	.6711513
TA_PQ1	.9059312	.4814211	.4245101	.5314103	.7289789	.5314103
TA_PQ2	.8298098	.4268912	.4029186	.5144446	.717248	.5144446
TA_PQ3	1.01336	.572902	.4404585	.5653487	.7518967	.5653487
TA_PQ4	.8310292	.4859475	.3450817	.5847539	.764692	.5847539
TA_PQ5	.8229003	.4459627	.3769376	.5419402	.7361659	.5419402
TA_PQ6	.8504805	.4426477	.4078327	.5204678	.7214346	.5204678
TA_PQ8	.969685	.5099249	.4597602	.5258665	.7251665	.5258665
TA_PQ9	1.608617	.3763033	1.232313	.2339298	.4836629	.2339298
TA_PQ10	1.196075	.5744955	.6215794	.4803174	.6930493	.4803174
TA_PQ11	.8381826	.4707461	.3674365	.5616271	.7494179	.5616271
overall				.9885994		

mc = correlation between depvar and its prediction

mc2 = mc^2 is the Bentler-Raykov squared multiple correlation coefficient

Source: Primary data

Conclusion

It would seem that the proposed HOTSPERF is both a valid and reliable instrument which can be used to measure hotel guests' perception of service quality. The next step would be for the instrument to be used to assess service quality using an 'experimental' and 'control' group and administering the SERVQUAL to one group, and comparing the findings to ascertain if different service perceptions emerge from the same population. Alternatively, a longitudinal study could

be conducted on the same sample over a period of time using the different questionnaires, and the results compared.

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