

A structural equation modeling approach to validate the dimensions of SERVPERF in insurance industry of Saudi Arabia

Mohammad Imdadul Haque^{a*} and Zafar Ahmad Sultan^b

^aAssociate Professor, CBAK, Prince Sattam Bin Abdulaziz University, Saudi Arabia

^bAssociate Professor, Department of Economics; L.S. College, B.R.A. Bihar University, India

CHRONICLE

Article history:

Received: November 28, 2018

Received in revised format: November 29, 2018

Accepted: January 16, 2019

Available online:

January 17, 2019

Keywords:

Insurance

Service quality

SERVPERF

SEM

Saudi Arabia

ABSTRACT

The Saudi Arabian insurance sector has two distinctive features. First, major revenue for this sector comes from the mandatory medical and motor insurance. Second, this sector is dominated by a few companies which generally provide the same products in the sector. Therefore, a company may focus on providing better service quality in order to attain future growth and stability. High-quality service is essential to gain a competitive advantage in the insurance sector. In this context, the present study identifies a gap in assessing the quality of service in the insurance sector of Saudi Arabia, using the SERVPERF scale in particular. Structural Equation Modeling is used to assess the quality of service. The results indicate that SERVPERF is not adequate to measure service quality in the context of Saudi Arabia. In the process, this study opens a debate on, whether a universally acknowledged SERVPERF scale is suitable to apply in an environment where service is of mandatory nature.

© 2019 by the authors; licensee Growing Science, Canada

1. Introduction

The insurance industry in Saudi Arabia is an important service sector. The annual compound growth rate of insurance sector's share in non-oil GDP of Saudi Arabia is 7.7 percent and the ratio of insurance sector's total assets to non-oil GDP is 3.8 percent for the period 2013-2017 (AlBilad Capital, 2018). The gross written premium (GWP) in Saudi Arabia has increased at a compound annual growth rate of 15 percent from US\$ 4.9 billion in 2011 to US\$ 9.9 billion in 2016. The major contributing factor for the performance of the insurance industry is the policy of compulsory medical and motor insurance which constitutes about 86 percent of GWP of total non-life insurance and about 84 percent of the entire sector (Alpen Capital, 2017).

In Saudi Arabia, there are around 32 companies providing insurance services. Among them in 2017, the market share of Tawuniya was 23.7 percent, Bupa Arabia was 21.8 percent and the remaining companies had a share of less than 10 percent each (AlBilad Capital, 2018). This indicates that the insurance

* Corresponding author.

E-mail address: m.haque@psau.edu.sa (M. I. Haque)

market is highly concentrated. In terms of market share, health constituted 53.7 percent and vehicles constituted 30.06 percent and the remaining was shared by property and others. Between 2011 and 2016, the health insurance increased at the rate of 25.4 percent and motor insurance increased at the rate of 13.4 percent per annum (Alpen Capital, 2017).

However, the penetration of insurance and density rate is small compared to mature markets (Albilad Capital, 2018). The net income of the insurance sector was negative in 2013 and then it increased to 2139 million SAR in 2016, but it again dropped to 734 million in 2017 (SAMA, 2017). Despite the slowdown in economic activities owing to fall in oil revenues, this sector has manifested its potential in diversifying the economy. Insurance sector activity is intensified owing to mandatory health insurance, an increase in construction activities, population growth, increased urbanization, regulatory reforms in capital markets (Gopalkrishna et al., 2008; Alpen Capital, 2017), etc.

Delivering high-quality service in today's competitive business environment is required to achieve a competitive advantage in the insurance sector. This service quality is what differentiates between service organizations. The role of service quality increases immensely in sectors like insurance where there is not much scope of differentiation in terms of products other than the quality of service itself. Further, the elements of intangibility, heterogeneity, and inseparability make the measurement of service quality unique for the service sector. Towards this, the current study proceeds with the objective of measuring the service quality in the insurance sector of Saudi Arabia.

2. Literature Review

Studies accepted the fact that service sector is growing rapidly and is contributing a major share to the world GDP (Jayawardhena et al., 2007; Lovelock & Wirtz, 2011; Freitas & Costa, 2012). These studies have also stressed that services are important in bringing competitiveness in the national economy. In addition, there is a need for the competitive provision of services as the share of the service sector is increasing in the world's GDP. For Saudi Arabia, Alhawaish (2014) found a long-term cointegrating relationship between the service sector and economic growth and reported 0.9 percent economic growth with every 1 percent increase in the service sector. In addition, the study reported bi-directional causality between service sector growth and economic growth.

Studies opined that measuring the quality of services is both different and difficult than studying the quality of products (Jain & Gupta, 2004; Vibha et al., 2011). The reason being, the service sector has added dimensions of intangibility like trust, experiences, etc. In addition, there is an inseparability of production and consumption and there is no need for storage. Moreover, it is of a perishable nature. Ghotabadi (et al., 2015) reviewed numerous researches over the years and found that SERVQUAL and SERVPERF are the most common scales to measure customers' perception of the quality of service quality. The scale of SERVQUAL/SERVPERF was developed with the idea that service quality is one of the antecedents' of customer satisfaction (Boulding et al., 1993) and there are definite relationships of it with behavioral intentions (Pearson et al., 2012; Cabuk et al., 2013).

SERVPERF is empirically proved to be a better measure of service quality. Studies like Buttle (1996) and Boulding (et al., 1993) have stated that the originators of SERVQUAL admitted, SERVPERF is a better performance scale to measure service quality. SERVPERF is a more accurate measurement for service quality in comparison with SERVQUAL as it has more "convergent and discriminant valid explanation of service quality construct" (Jain & Gupta, 2004). The study is of the view that SERVPERF has greater "psychometric soundness and greater instrument parsimoniousness" (Brown et al., 1993; Adil et al., 2013). Carrillat et al. (2007) opined that both SERVQUAL and SERVPERF are the same in terms of predictive validity but SERVPERF is better for "less individualistic cultures, non-English speaking countries, and industries with an intermediate level of customization". Ghotabadi et al.

(2015) reviewed many pieces of studies over the years and opined that measuring the perception approach of SERVPERF is not only enough but also useful than the perception minus expectation approach of SERVQUAL.

The case of insurance sector of Saudi Arabia is quite unexplored. There are a very few studies on the quality of service of the insurance sector in Saudi Arabia. SERVQUAL has been used to study the service quality in the insurance sector of Saudi Arabia by Ishfaq et al. (2015) and by Ali and Tausif (2018). But, there are no studies on the insurance sector of Saudi Arabia using SERVPERF scale. In addition, the case of Saudi Arabia is probably different in terms of the perception regarding insurance service quality. There are probably two reasons for it. First, being a country governed by Islamic principles, insurance is still not acceptable in totality. Second, here insurance is merely for fulfilling statutory requirement as stated by Ansari (2011) and Ali and Tausif (2018).

3. Research Methodology

Initially, SERVQUAL was developed by Parasuraman et al. (1985a, 1988b). It has twenty-two items of five dimensions namely: tangibles, empathy, reliability, responsiveness, and assurance. It measures quality in terms of the difference between perceptions and expectations. Later Cronin and Taylor (1992a, 1994b) adapted the same scale but included only perceptions in its analysis. They named it SERVPERF. They practically studied for models related to SERVQUAL dimensions and found that SERVPERF was the most adequate to measure the quality of service. They empirically proved their point with studies on banks, pest control, dry cleaning, and fast food forms. The number of total items in the questionnaire is reduced and is able to explain greater variance in service quality.

SERVPERF has been used to measure the service quality of fast food industry (Jain & Gupta 2004), transport industry (Perez et al. 2007), food industry (Qin & Prybutok, 2009), insurance sector (Siddiqui & Sharma, 2010), travel agencies (Moisescu & Gica, 2013), banks (Salime, 2010), Hospitals (Aran et al., 2012); attention centers (Enrique & Vanessa, 2015), mobile phone services (Theerthaana, 2015), transport company (Ingaldi, 2015), tourist package (Brzezińska-Wójcik and Widz, 2017), Education sector (Hassan & Jafri, 2017), and tire repair service industry (Awuah, 2018).

The questionnaire consists of four statements each on the five dimensions of service quality and four more statements on the satisfaction from service. Responses are collected on a 5 point Likert scale, where 1 represents strongly disagrees and 5 strongly agrees. Reliability test is done using Cronbach Alpha.

Data is analyzed using Structural Equation Modelling (SEM) through Stata 12. SEM is a multivariate technique through where a system of equations is estimated. It can be used when the variables are measured on a Likert scale. SEM, developed by Sewall Wright is used to study the relationship between the five dimensions of the SERVPERF scale and customer satisfaction. SEM has been used universally to study SERVPERF (Siddiqui & Sharma, 2010, Al Muala, 2011; Abdullah et al. 2012; Camgoz-Akdaga & Zaim, 2012; Renganathan, 2012, Kumbhar, 2011, Khafafa & Shafii, 2013, Campdesuñer et al., 2017).

4. Analysis

A questionnaire is administered at Prince Sattam Bin Abdulaziz University. Out of the total filled in questionnaires, 34 are rejected, making the response rate to be over 90%. The sampling is convenience sampling but studies like Martensen (2007), Sahay and Sharma (2010), and Tausif (2016) have established that a sample of college going adolescents can be very well used for assessing customer satisfaction. The value for Cronbach Alpha is 0.854. This indicates that the internal consistency is high and the questionnaire is reliable (Appendix A). The general rule of thumb is that a sample size of 200 is

adequate to perform SEM (Novikova, 2013). From this point of view, our sample size is adequate as we have more than 300 samples.

It is evident in Table 1, the average score of all the dimensions namely Tangibles (T), Reliability (R), Responsiveness (RS), Assurance (A) and Empathy (E) have a mean of between 2 and 3. This indicates that customers are dissatisfied in all aspects of the five dimension of service quality. Even, the average score for 'Satisfaction' is 3.08, where 3 means neutral and 4 means satisfied. If we take the individual items under investigation we have: the satisfaction the services of my insurance company are as per my expectations (3.34); I recommend my insurance company to others (3.38); In future also, I will keep on purchasing services from the same company (3.27); I am even willing to pay more for the same services from the same company (2.31) (Appendix B).

Table 1
Statements on service quality dimensions

Statements	Mean	St Dev
T1 My insurance company keeps promise and delivers on time	2.61	0.78
T2 My insurance company performs its services right the first time		
T3 My insurance company maintains error free records		
T4 My insurance company demonstrates sincere interest in solving issues		
R1 My insurance company provides prompt customer services	2.75	0.80
R2 My insurance company is willing to help in emergency situations and at odd hours		
R3 My insurance company tells exactly as to when the work would be done		
R4 The customer care contact numbers are functional round the clock		
RS1 It's easy access to information and service details from my insurance company	2.57	0.78
RS2 My insurance company has visually attractive and aptly located offices		
RS3 My insurance company provides variety of facilities and services		
RS4 The appearance and uniform of employees of my insurance company is fine		
A1 I feel safe in dealing with my insurance company	2.66	0.81
A2 My insurance company shows sincerity, politeness and patience in resolving complaints		
A3 The behavior of employees of my insurance company instill confidence		
A4 The employees of my insurance company are knowledgeable enough to answer customer queries		
E1 My insurance company has convenient operating hours	2.73	0.83
E2 My insurance company has customers best interest at heart		
E3 My insurance company gives me individual attention		
E4 My insurance company updates me on all important things like when my service is to expire		
S1 Overall the services of my insurance company are as per my expectations	3.08	0.77
S2 I recommend my insurance company to others		
S3 In future also, I will keep on purchasing services from the same company		
S4 I am even willing to pay more for the same services from the same company		

The model is depicted in Fig. 1 below. The observed variables are the one which is included in the dataset. They are represented by rectangles (Ts, Rs, RSs, As, Es and Ss). Latent variables are the unobserved variables in the form of a composite score. They are represented in oval shapes (L1, L2, L3, L4, L5, and L6). Paths, represented by straight arrows show the relationship between variables. They are analogous to the coefficients in regression.

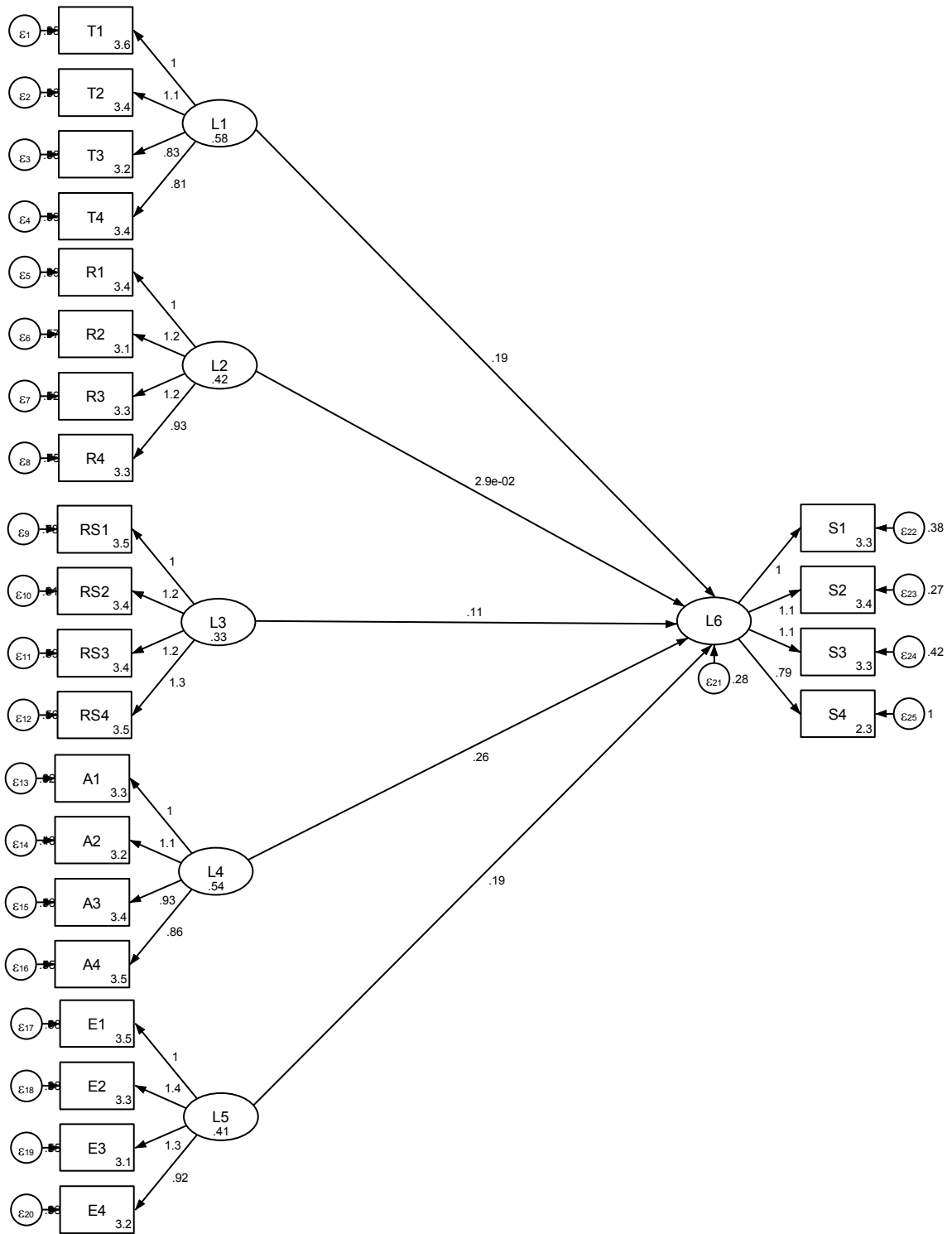


Fig. 1. Structural Equation Modeling

Of all the variables, tangibles (p value=0.006), responsiveness (p value=0.001) and assurance (p value=0.026) are significant. The highest score is among the significant variable of assurance (0.31), followed by tangibles (0.24) and empathy (0.20). The variables empathy and reliability are not significant (Appendix C).

But for the Likelihood Ratio, the p-value of Chi-square is 0.000 and a model is fit only when the p-value is more than 0.05 (Porritt et al., 2015). In order to double check for the model fit, the probability value for Root Mean Square Error of Approximation (RMSEA) is checked. This p-value is less than 0.05; which again shows that the model is a poor fit (Appendix D). The model is not fit regardless of the circumstances that all the endogenous variables (Ts, Rs, RSs, As and Es) are significantly associated with their respective exogenous variables (L1, L2, L3, L4, and L5) (Appendix B).

5. Conclusion

A survey has been accomplished on the college-going students in Saudi Arabia to measure the service quality and its relationship with customer satisfaction. A sample of 314 is surveyed. The scale of SERVPERF has been used. Also, all the five dimensions of SERVPERF namely “tangibles, empathy, reliability, responsiveness, and assurance” show poor scores. Overall, the level of satisfaction was low. Structural Equation Modeling shows that only tangibles, responsiveness, and assurance were significantly related to satisfaction. The remaining dimensions namely empathy and reliability were not significantly related to customer satisfaction. Though the method of Structural Equation Modeling has been used to study the relationship between SERVPERF dimensions and customer satisfaction and the results have shown that the model was not fit. There are two plausible reasons for the model was not fit. First, the sample of only college going students and second may be the scale. A probable limitation of this study could be the use of a convenience sample which is of an almost homogeneous group of the sample. Nevertheless, this study contributes to the existing literature on the service quality dimensions in the service sector. This study also fills the research gap in terms of the application of SERVPERF scale to measure the service quality in the Saudi Arabian insurance sector. The scope for further research would be used as the same scale of SERVPERF on a more diversified sample of respondents. If the results are still the same then it would suggest that SERVPERF may not be sufficient to measure the quality of service in the insurance sector. If the same results are repeated in case of a diversified sample also, then it infers that SERVPERF is not suitable for measuring services which are sort of mandatory in nature.

References

- Abdullah, K., Jan, M. T., & Manaf, N. H. A. (2012). A structural equation modelling approach to validate the dimensions of servperf in airline industry of Malaysia. *International Journal of Engineering and Management Sciences*, 3(2), 134-141.
- Adil, M., Al Ghaswyneh, O.F.M., & Albkour, A.M. (2013). SERVQUAL and SERVPERF: A review of measures in services marketing research, *Global Journal of Management and Business Research Marketing*, 13(6), 65-76
- Ali, A., Tausif, M.R. (2018). Service quality, customers' satisfaction, and profitability: an empirical study of Saudi Arabian insurance sector. *Investment Management and Financial Innovations*, 15(2), 232-247.
- Albilad Capital (2018), Sector reports Saudi insurance sector 2017. Available at http://www.albilad-capital.com/Research_EnglishReport/InsuranceSectorQ417EN.pdf
- Alpen Capital (2017). GCC insurance industry. Available at <https://s3-eu-west-1.amazonaws.com/content.argaam.com/32852b01-d8fd-49d0-b25f-bec5cfec0a86.pdf>
- Alhawaish, A.K. (2014). Does the service sector cause economic growth? Empirical evidence from Saudi Arabia, *The Global Studies Journal*, 7(1), 1-6.
- Al Muala, A. (2011). Determinant factors of tourists satisfaction in Muslim's Countries: A Structural equation model (SEM). *American Academic & Scholarly Research Journal*, 1(1), 21-28.
- Ansari, Z.A. (2011). Analysis of the impact of reforms on insurance industry of Saudi Arabia. *Interdisciplinary Journal of Research in Business*. 1(8), 28-37.
- Boulding, W., Kalra, A., Staeling, R., & Zeithaml, V. A. (1993). A dynamic process model of service quality: From expectation to behavioral intentions. *Journal of Marketing Research*, 30(1), 7-27.

- Brown, T.J., Churchill Jr, G.A. & Peter, J.P. (1993). Research note: Improving the measurement of service quality. *Journal of Retailing*, 69(1), 127-139.
- Buttle, F. (1996). SERVQUAL: Review, critique, research agenda. *European Journal of Marketing*, 30(1), 8-32.
- Çabuk, S., Tanrikulu, C., & Gelibolu, L. (2014). Understanding organic food consumption: attitude as a mediator. *International Journal of Consumer Studies*, 38(4), 337-345.
- Campdesuñer, P., Vidal, G. G., Rodríguez, A.S., & Vivar, R.M. (2017). Structural equation model: Influence on tourist satisfaction with destination attributes, *Tourism and Hospitality Management*, 23(2), 219-233.
- Camgoz-Akdaga, H., Zaimb, S. (2012). Education: A comparative structural equation modeling study, *Procedia - Social and Behavioral Sciences*, 47, 874 – 880.
- Carrilat, F. A., Jaramillo, F. M.I., & Jay P. (2007). The validity of the SERVQUAL and SERVPERF scales: A meta-analytic view of 17 years of research across five continents, *International Journal of Service Industry Management*, 18(5), 472-490.
- Cronin, J., & Taylor, S. A. (1992a). Measuring service quality: A reexamination and extension. *Journal of Marketing*, 56(3), 55-67.
- Ghotababadi, A.R., Feiz, S., & Baharun, R. (2015). Service quality measurements: A review. *International Journal of Academic Research in Business and Social Sciences*, 5(2), 267-286.
- Gopalkrishna, B., Rodrigues, L., & Varambally, K. (2008). Service quality in general insurance sector: An empirical study. *Indian Journal of Industrial Relations*, 44(1), 49-61.
- Ishfaq, M., Qadri, F. A., Abusaleem, K. S. M., & Al-Zyood, M. (2016). Measuring Quality of Service from Consumers' Perspectives: A Case of Healthcare Insurance in Saudi Arabia. *Health Science Journal*, 10(1), 1.
- Jain, S., & Gupta, G. (2004). Measuring service quality: SERVQUAL vs. SERVPERF scales. *Vikalpa*. 29(2), 25-37.
- Jayawardhena, C., Souchon, A. L., Farrell, A. M., & Glanville, K. (2007). Outcomes of service encounter quality in a business-to-business context. *Industrial Marketing Management*, 36(5), 575-588.
- Khafafa, A.J., & Shafii, Z. (2013). Measuring the perceived service quality and customer satisfaction in Islamic bank windows in Libya based on structural equation modelling (SEM), *Afro Eurasian Studies*, 2(1&2), 56-71.
- Kumbhar, V.M. (2011). Structural equation modeling of Ebankqual scale: A study of e-banking in India, *The Journal of Sri Krishna Research & Educational Consortium*, 2(5), 18-32.
- Lovelock, C.H., Wirtz, J. (2011). *Services Marketing: People, Technology, Strategy*, 7th ed., Prentice Hall, Upper Saddle River, NJ.
- Martensen, A. (2007). Tweens' satisfaction and brand loyalty in the mobile phone market, *Young Consumers*, 8(2), 108-116.
- Novikova, S. I., Richman, D. M., Supekar, K., Barnard-Brak, L., & Hall, D. (2013). NDAR: A model federal system for secondary analysis in developmental disabilities research. In *International Review of Research in Developmental Disabilities* (Vol. 45, pp. 123-153). Academic Press.
- Pearson, D., Henryks, J., Trott, A., Jones, P., Parker, G., Dumaresq, D. & Dyball, D. (2011). Local food: Understanding consumer motivations in innovative retail formats. *British Food Journal*, 113(7), 886-899
- Policani Freitas, A.L., & Gomes Costa, H. (2012). Development and testing of a multi-criteria approach to the assessment of service quality: An empirical study in Brazil. *International Journal of Management*, 29(2), 633-651.
- Parasuraman, A, Zeithaml, V. A., & Berry, L. L. (1985a). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, 49 (Fall), 41-50.
- Parasuraman, A, Zeithaml, V. A., & Berry, L. L. (1988b). SERVQUAL: A multiple item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1), 12-40.
- Porritt, J. M., Sufi, F., Barlow, A., & Baker, S. R. (2014). The role of illness beliefs and coping in the adjustment to dentine hypersensitivity. *Journal of Clinical Periodontology*, 41(1), 60-69.

- Renganathan, R., Balachandran, S., & Govindarajan, K. (2012). Customer perception towards banking sector: Structural equation modeling approach. *African Journal of Business Management*, 6(46), 11426-11436.
- Sahay, A., & Sharma, N. (2010). Brand relationships and switching behavior for highly used products in young consumers. *Vikalpa*, 35(1), 15 -30.
- Siddiqui, M., & Sharma, T. (2010). Analyzing customer satisfaction with service quality in life insurance services. *Journal of Targeting, Measurement and Analysis for Marketing*, 18(3-4), 221-238.
- Tausif, M.R. (2016) An empirical study on consumer's perception towards mobile brands in Saudi Arabia. *International Journal of Economic Research*, 13(7), 2569-2585.
- Taylor, S. A., & Cronin Jr, J. J. (1994b). SERVPERF versus SERVQUAL: Reconciling performance-based and perceptions-minus-expectations. *Journal of Marketing: A Quarterly Publication of the American Marketing Association*, 58(1), 125-131.
- Vibha, A., Nravichandran, & Jain, N.K. (2011). Dimensionality of service quality and its critical predictors to customer satisfaction in Indian retail banking. *Advances in Management*, 4(10), 20-26.

Appendices

Appendix A

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.854	0.85	24

Item Statistics				
	Mean	Std. Deviation	N	Cronbach's Alpha if Item Deleted
T1	2.4395	0.9648	314	0.844
T2	2.621	0.9886	314	0.844
T3	2.7866	0.98989	314	0.845
T4	2.6115	0.98649	314	0.842
R1	2.6433	1.05451	314	0.842
R2	2.8662	1.06405	314	0.843
R3	2.7389	1.04924	314	0.843
R4	2.7452	1.05385	314	0.844
RS1	2.5000	1.05519	314	0.845
RS2	2.6497	1.03526	314	0.845
RS3	2.6083	1.04043	314	0.842
RS4	2.5287	1.0548	314	0.845
A1	2.6815	1.07862	314	0.843
A2	2.8248	1.05347	314	0.843
A3	2.5796	0.99922	314	0.843
A4	2.5446	0.97881	314	0.844
E1	2.5032	1.04911	314	0.843
E2	2.7134	1.07573	314	0.843
E3	2.9172	1.10452	314	0.843
E4	2.7898	1.13065	314	0.847
S1	3.3439	0.91291	314	0.871
S2	3.3885	0.91596	314	0.871
S3	3.2739	1.00866	314	0.871
S4	2.3185	1.13913	314	0.873

Appendix B

	Measurement	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
T1	L1	0.78	0.03	25.45	0.00	0.72	0.85
	cons	3.69	0.15	23.41	0.00	3.38	4.00
T2	L1	0.81	0.03	26.80	0.00	0.75	0.87
	cons	3.24	0.14	23.16	0.00	3.13	3.71
T3	L1	0.63	0.04	15.27	0.00	0.55	0.71
	cons	3.25	0.14	22.98	0.00	2.97	3.52
T4	L1	0.62	0.04	14.67	0.00	0.53	0.70
	cons	3.44	0.14	23.18	0.00	3.14	3.73
R1	L2	0.61	0.04	13.21	0.00	0.52	0.70
	cons	3.18	0.13	22.91	0.00	2.91	3.46
R2	L2	0.70	0.04	15.71	0.00	0.61	0.79
	cons	2.94	0.13	22.60	0.00	2.69	3.20
R3	L2	0.72	0.04	16.54	0.00	0.63	0.81
	cons	3.11	0.13	22.82	0.00	2.84	3.38
R4	L2	0.57	0.04	11.62	0.00	0.47	0.66
	cons	3.09	0.13	22.79	0.00	2.82	3.35
RS1	L3	0.54	0.05	10.34	0.00	0.43	0.64
	cons	3.32	0.14	23.06	0.00	3.03	3.60
RS2	L3	0.65	0.04	13.98	0.00	0.56	0.74
	cons	3.24	0.14	22.97	0.00	2.96	3.52
RS3	L3	0.67	0.04	14.77	0.00	0.58	0.76
	cons	3.26	0.14	23.00	0.00	2.98	3.54
RS4	L3	0.70	0.04	15.82	0.00	0.61	0.79
	cons	3.29	0.14	23.03	0.00	3.01	3.57
A1	L4	0.68	0.03	17.42	0.00	0.60	0.76
	cons	3.08	0.13	22.78	0.00	2.81	3.34
A2	L4	0.78	0.03	22.73	0.00	0.71	0.85
	cons	3.01	0.13	22.69	0.00	2.75	3.27
A3	L4	0.68	0.04	17.10	0.00	0.60	0.76
	cons	3.53	0.15	23.27	0.00	3.23	3.83
A4	L4	0.64	0.04	15.49	0.00	0.56	0.72
	cons	3.53	0.15	23.27	0.00	3.23	3.83
V22	L5	0.61	0.04	14.25	0.00	0.52	0.69
	cons	3.33	0.14	23.07	0.00	3.05	3.62
V23	L5	0.82	0.03	22.37	0.00	0.74	0.89
	cons	3.06	0.13	22.75	0.00	2.79	3.32
V24	L5	0.73	0.03	18.48	0.00	0.65	0.81
	cons	2.79	0.12	22.36	0.00	2.55	3.04
V25	L5	0.52	0.04	10.62	0.00	0.42	0.61
	cons	2.84	0.12	22.44	0.00	2.59	3.09
S1	L6	0.69	0.03	19.64	0.00	0.62	0.76
	cons	3.89	0.15	24.44	0.00	3.58	4.20
S2	L6	0.78	0.03	24.76	0.00	0.72	0.85
	cons	3.99	0.16	24.34	0.00	3.67	4.31
S3	L6	0.72	0.03	20.95	0.00	0.65	0.79
	cons	3.46	0.14	24.08	0.00	3.18	3.75
S4	L6	0.42	0.04	9.00	0.00	0.33	0.51
	cons	2.08	0.09	21.15	0.00	1.89	2.28

Endogenous variables

Measurement: T1 T2 T3 T4 R1 R2 R3 R4 RS1 RS2 RS3 RS4 A1 A2 A3 A4 E1 E2 E3 E4 S1 S2 S3 S4

Latent: L6

Exogenous variables

Latent: L1 L2 L3 L4 L5

Appendix C

The relationship between SERVPERF dimensions and satisfaction

	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
L1	.2407159	.0881624	2.73	0.006	.0679209	.413511
L2	.0319084	.104299	0.31	0.760	-.1725139	.2363308
L3	.1002073	.0969615	1.03	0.301	-.0898337	.2902484
L4	.3188506	.0934514	3.41	0.001	.1356891	.5020121
L5	.202413	.0911663	2.22	0.026	.0237302	.3810957

Source: Stata output

Appendix D

Model fit

Fit Statistic	Value	P-value
Likelihood ratio	1341.068	0
RMSEA	0.119	0

Source: Stata output



© 2019 by the authors; licensee Growing Science, Canada. This is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC-BY) license (<http://creativecommons.org/licenses/by/4.0/>).