

# RELATION BETWEEN PRICE, SERVICE QUALITY AND LOYALTY OF ADSL SERVICE USERS

by HỒ MINH SÁNH & Ass. Prof. Dr. TRẦN KIM DUNG

## Abstract

This research modifies the Servqual measuring tool developed by Parasuraman, Berry and Zeithaml (1988, 1991) to measure the ADSL service quality. The research uses the SEM with samples of the size  $n = 495$  users who use the ADSL service supplied by three major suppliers in HCMC in order to test relations between quality, price, and perceptions and loyalty of ADSL users. Results show that the scale used for measuring ADSL service comprises six items: transmission line, tangible facilities, assurance, reliability, empathy and responsiveness with 22 observed variables. Customers who feel content with the price appreciate the service quality while the service quality affects positively the customer loyalty. Results of the research may help ADSL suppliers grasp components of their service quality, and relations between quality, loyalty and price, thereby working out suitable strategies to enhance the customer loyalty.

## 1. Introduction

The ADSL service has developed well in Vietnam and competition between suppliers in HCMC has become much keener. Estimates of the quality of the ADSL service, however, is currently based on technical features set by the Quality Management Office in its “Dịch vụ truy nhập Internet ADSL – Tiêu chuẩn chất lượng” (2006; “ADSL service: Quality standards”) and there is no instrument for measuring customer perceptions and satisfaction of the service quality.

Because customers hold the highest right to estimate the service quality, many tools for measuring the service quality has been developed and the Servqual scale suggested by Parasuraman et al. (1988, 1991) is used broadly to measure the service quality in various fields. Because the service quality varies over industries and markets, we need more studies of the Servqual scale to build a model of service quality in each industry or mar-

ket (Nguyễn Đình Thọ and Nguyễn Thị Mai Trang, 2007).

The research aims at modifying and adjusting the Servqual scale developed by Parasuraman, Berry and Zeithaml (1988, 1991) in order to use it to measure perception of ADSL service quality in HCMC and relations between quality, price and loyalty to the service by customers.

## 2. Theoretical basis

### a. ADSL service quality:

The service quality is the one perceived by customers (Gronroos, 1998). The customer perception is a result used for assess the service quality, it comes from their past expectation and experience, and affects the corporate public image (Caruana 2000). Parasuraman et al. (1988) developed the Servqual, a scale broadly used for measuring the service quality based on five basic components: tangibles, reliability, responsiveness, assurance, and empathy. This scale is adjusted and modified when applying to different industries. For example, Parasuraman, Berry and Zeithaml modified the scale when applying it to banking and telephone businesses, and in Vietnam, Nguyễn Đình Thọ and Nguyễn Thị Mai Trang (2007) applied it to supermarket service quality. We have searched the ProQuest website – one of the most reliable suppliers of scientific information in the world, and found no application of this scale to the ADSL service.

In Vietnam, as set by the Quality Control Office (2006), the ADSL service quality is a synthesis of indicators that reflect customer satisfaction about the service. These indicators include:

- Technical indicators: average data transfer rate, average usage capacity, ratio of access capacity wrongly billed.

- Service quality indicators: service usability, time for installation of service, time for overcome losses of Internet exchange, customer complaint, response to customer complaint, and customer



supporting services.

Based on the SERVQUAL model and regulations on standards of ADSL service, the model used for measuring the ADSL service quality comprises:

- Tangibles: facilities used by supplier to provide ADSL service.
- Empathy: Care and individualized attention to its customers by ADSL service supplier.
- Assurance: Knowledge, professionalism and courtesy of employees.
- Responsiveness: Supplier's willingness to help customers and provide prompt service.
- Reliability: Ability to perform the promised service dependably and accurately, and ability to make customers feel sure about service charge and confidentiality.

## b. Price:

Perceived price of a service or commodity has relation with quality received. Theoretically, goods or services of high quality are dearer than the ones of lower quality. Services, however, are usually intangible and therefore hard to evaluate their quality before buying. The research tries to define and measure the construct of service price based on subjective perception by customers of different charges of the ADSL service.

## c. Quality-based loyalty to service:

Loyalty to service can be measured by behavior (purchasing), attitude of customers toward brand names or customer perception of the brand name. Gremler and Brown (1996) consider the service loyalty is a combination of three components: purchase of service, attitude toward the service and perception of the service, and the service loyalty is "the degree to which a customer exhibits repeat purchase behavior from a service provider, possesses a positive attitudinal disposition toward the provider, and considers using only this provider when a need for this service arises."

According to Zeithaml, Berry, Parasuraman (1996, 38), the service loyalty means saying positive things about the service, recommending the service to others, encouraging friends and relatives to use the service, considering the service as the first choice, and using the service in future.

## d. Research model and hypotheses:

The research examines relations between price, ADSL service quality and customer loyalty.

According to Zeithaml et al. (1996), the service quality affects the loyalty of customers who use the service. Meanwhile, empirical observations show that when customers are content with the service quality, they tend to get loyal to the service provider and vice versa. Similarly, when customers consider the price as cheap, they tend to feel more content with the service quality. Our hypotheses are:

H1: The more customers is satisfied with the service price, the higher regard they pay to the ADSL service quality

H2: The more satisfied customers feel with the ADSL service quality, the higher their loyalty to the service provider is.

Two research models are suggested. In the theoretical model, the price affects positively the service quality; and the service quality has positive effects on the loyalty of ADSL service users. We assume that besides the service quality, satisfaction from low charges also affects positively on the user loyalty. Therefore, we suggest a competitive model in which the price will produce positive effects on the service quality and user loyalty; and at the same time, the service quality affects positively the loyalty of ADSL service users.

## 3. Samples

The research attracts 495 ADSL users from various districts in HCMC and selection is based of market shares of major ADSL providers (Table 1)

**Table 1: Structure of samples based on market shares of providers**

Service provider	VNPT	Viettel	FPT	Others	Total
Market share (%)	61%	18%	16%	5%	100%
Size of samples	299	90	80	26	495

Our survey was carried from March to May 2009. Of respondents, 254 (51.3%) were male; 241 (48.7%) were female; 14 (2.8%) were teenagers; 73.1% of them were in the 21-35 age bracket; 100 (20.2%) were of the 36-45 age bracket; and 3.6% of them were older than 45. Regarding their education, 60.8% had university degrees; 22.6% were high school graduates; and 11.5% were graduates from 3-year colleges. As for the purpose of their use of the Internet, 34.5% used it for their jobs;



26.7% for their studies; 22.7% for communication; and 10.3% for entertainment. Regarding occupations of respondents, 20.6% of them were students; 48.3% were white-collar employees; 9.7% were workers; 4.6% were teachers and researchers; and 4.8% were company owners. As for their familiarity with the Internet, 53.7% of respondents had used the service for more than one year; 32.3% less than six months; and 13.9% from six to 12 months. As for their income, 35.4% earned less than VND3 million a month; 41% from 3 to 5 million; 12.3% from 5 to 8 million; and 11.3% more than 8 million. Regarding their experience of ADSL service, 26.3% of them had used the service from other providers, and 73.7% had used the service from only one provider.

## 4. Scale

The research employs the Servqual scale developed by Parasuraman et al. (1988) and instructions presented by Parasuraman et al. (1991). Through team discussion, we added transmission line (4 observed variables as a component characteristic of the ADSL service quality and adjusted 16 others to make them appropriate to features of the ADSL service (Appendix 1)

The price scale comprises three observed variables based on three contents used for calculating the ADSL charge: a cheap charge for network connection, monthly subscriber charge, and volume of data sent and received.

The loyalty scale comprises four observed variables, according to definition by Zeithaml, Berry, and Parasuraman (1996, 38), reflecting the fact that customers keep on using the service and encourage others to use the ADSL service from the known provider.

## 5. Data analysis

The scales are initially assessed by using the Cronbach alpha and EFA, and then, we use the CFA to test the scales in terms of composite reliability, sum of variance extracted, unidimensionality, convergent validity, and discriminant validity. The SEM is used for testing the research models and hypotheses.

- Scale test: In the initial test with Cronbach alpha, components of the Servqual scale have required reliability with Cronbach anpha values from 0.69 to 0.85. The CFA test shows that the Servqual scale has fit parameters:  $\chi^2[193] =$

369.714; GFI = 0.937; TLI = 0.951; CFI = 0.959; and RMSEA = 0.043; and six components (Table 2). Correlation coefficient of constructs are all smaller than 1 (varying from 0.49 to 0.78), and statistically significant. Thus, all constructs have discriminant validity. All weights  $\lambda_i$  are greater than 0.5 and statistically significant, therefore the scale has the convergent validity. Coefficients of composite reliability of constructs are acceptable. The variance extracted of tangibles is rather low but still acceptable (Table 2).

The price scale has only three variables that are tested along with the measurement model.

The loyalty scale has: Cronbach alpha = 0.84;  $\chi^2[2] = 3.2$ ; GFI = 0.997; TLI = 0.995; CFI = 0.998; and RMSEA = 0.035.

**Table 2: Result of Servqual scale test and critical measurement model**

Scale	Component	Composite reliability (pc)	Variance extracted (pvc)	Mean weight ( $\lambda$ )
<b>Servqual</b>	6	0.9165	0.6477	0.803
1. Tangibles	3	0.6966	0.4336	0.6583
2. Responsiveness	3	0.7436	0.4921	0.7007
3. Empathy	4	0.8506	0.5884	0.7653
4. Reliability	4	0.8011	0.5028	0.7075
5. Transmission line	4	0.7410	0.4901	0.6973
6. Assurance	4	0.8091	0.5165	0.7158
<b>Loyalty</b>	4	0.8415	0.5705	0.7550
<b>Price</b>	3	0.7287	0.4739	0.6863

- Test of critical measurement model: The measurement model is fit with  $\chi^2[321] = 596.581$ ; GFI= 0.922; TLI= 0.944; CFI= 0.952; and RMSEA= 0.042. Correlation coefficients between latent variables vary between 0.404 and 0.647 with all  $(1-r)/se > 4.4$  reflecting the discriminant validity of constructs in the measurement model. Loyalty and price scales, after being tested, have acceptable coefficients of composite reliability. The variance extracted of price is low but acceptable and both weights  $\lambda_i$  of the two scales are greater than 0.5 and statistically significant.

- Test of research model: The test shows that the research model is fit with  $\chi^2[369] = 723.134$ ;



GFI= 0.908; TLI= 0.935; CFI= 0.941; and RMSEA= 0.044 (Figure 1).

In the competitive model, the price has positive effects on the customer loyalty. This model is also fit with  $\chi^2[368] = 721.741$ ; GFI= 0.908; TLI= 0.934; CFI= 0.941; and RMSEA= 0.044.

The research model is compared with the competitive one and parameters of the two models are presented in the Table 3.

Figure 1: Results of hypotheses test

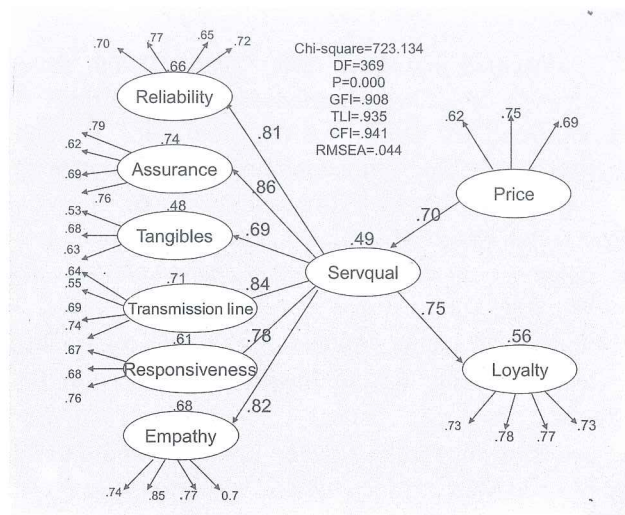


Table 3: Comparison between parameters of research and competitive models

a. Comparison of  $\chi^2$  with degree of freedom (df)

$\chi^2$ 1	df1	$\chi^2$ 2	df2	$\Delta$ df	$\Delta \chi^2$	p-value
723.134	369	721.741	368	1	1.393	0.238

b. Comparison of causal relationship between constructs

Research model			Estimate	S.E.	C.R.	p-value
Price	→	Servqual	0.7	0.077	9.111	0.001
Servqual	→	Loyalty	0.749	0.067	11.109	0.001
Competitive model			Estimate	S.E.	C.R.	p-value
Price	→	Servqual	0.692	0.076	9.062	0.001
Servqual	→	Loyalty	0.684	0.083	8.232	0.001
Price	→	Loyalty	0.085	0.071	1.2	0.23

c. Comparison of  $R^2$

	Research model	Competitive model
Servqual	0.49	0.479
Transmission line	0.711	0.713
Assurance	0.739	0.743
Empathy	0.677	0.68
Responsiveness	0.615	0.613
Tangibles	0.483	0.485
Reliability	0.662	0.661
Loyalty	0.56	0.556

Thus, both models have similar and fit estimates as parameters. The price has a strong and positive effect ( $\beta = 0.7$ ,  $p < 0.001$ ) on satisfaction from the service quality. The hypothesis H1 is accepted. The positive effect by the service quality on the customer loyalty is also very strong ( $\beta = 0.75$ ,  $p < 0.001$ ), which allows us to accept the hypothesis H2.

Direct effect by the price on the loyalty is very weak ( $\beta = 0.085$ , and  $p = 0.23$ )  $\beta = 0.085$ ,  $p = 0.23$ . In the competitive model, when the degree of freedom falls by one unit,  $\chi^2$  varies by 1.393 with  $p$  equaling 0.238, the competitive model is not fitter, this means that there is no difference between the two models, therefore the research model is selected instead of the competitive one. It's worth noting that the price has an indirect effect on the customer loyalty through the service quality (total effect of satisfaction from the low price on the loyalty is equal to 0.559).

## 6. Result discussion

When testing the Servqual scale, 15 variables are added or adjusted with a view to making them appropriate to characteristics of the ADSL service; seven original variables are retained and four others are eliminated. The scale meets requirements in terms of convergent validity, discriminant validity, standard and unidimensional values. Research results also show that price, service quality and loyalty have close causal relationships. The more the customers feel satisfied with the price, the higher regard they pay to the ADSL service quality. The service quality has a strong effect and explains 56% of the customer satisfac-



tion, therefore providers should improve the service quality to enhance the customer loyalty.

Regarding previous studies employing the Servqual scale in Vietnam, results of the research support the research on supermarket service quality by Nguyễn Đình Thọ and Nguyễn Thị Mai Trang (2007): The price affects the service quality; the service quality affects the customer loyalty; and the price affects the customer loyalty through the service quality but doesn't affect directly the customer loyalty.

According to Parasuraman et al. (1991, 445), "Servqual is most valuable when it is used periodically to track service quality trends and when it is used in conjunction with other forms of service quality measurement." That is why this scale should be used in conjunction with regulations set by the "ADSL service: Quality standards" (2006) for measuring the service quality.

## 7. Main contributions of the research

The research modifies the Servqual scale developed by Parasuraman et al. (1988, 1991) to measure the ADSL service quality. Results show that besides five original Servqual components (tangibles, assurance, reliability, empathy and responsiveness), the transmission line is added to the ADSL service scale. After being tested, the scale meets requirements in terms of validity, reliability, standard value, unidimensionality and fit. Thus, the research offers two scales used for measuring the ADSL service quality including six components and 22 observed variables.

We also tested relationships between quality, perceived price and customer loyalty to the ADSL service. Results show that the price perceived as cheap may make the customer think the service quality is high while the service quality creates the customer loyalty. The research results can help ADSL providers grasp components of the service quality, and relationships between quality, loyalty and price, thereby working out appropriate strategies to enhance proportion of loyal customers.

## 8. Research limitations and implications for further researches

The research is limited to ADSL service users in HCMC. Its generalizing power may be higher when it is carried out in another locale ■

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Appendix 1: ADSL service scale (\*)

Symbol	Item	(*)
<b>Transmission line</b>		
truyen1	Quality of the line gets stable over time	<i>R</i>
truyen2	Quality of the cable to customer's house is good and of approved standard	<i>R</i>
truyen3	Data transmission rate is as high as promised	<i>R</i>
truyen4	The line operates well after installation	<i>R</i>
<b>Tangibles</b>		
huuhinh1	Provider has a broad retail network	<i>R</i>
huuhinh2	Provider has modern facilities	<i>R</i>
huuhinh3	Provider's offices and shops are light and spacious and look trustworthy	<i>R</i>
huuhinh4	Employees have good-looking uniforms	
<b>Empathy</b>		
dongcam1	Employees are attentive and understand customers' needs	<i>R</i>
dongcam2	Company always pays full attention to customers	<i>R</i>
dongcam3	Company always have customers' interest at heart	<i>R</i>
dongcam4	Company regularly supplies technical information to customers	<i>R</i>
dongcam5	Company always listens to customers' opinions	
dongcam6	The staff are considerate towards customers	
dongcam7	Company offers convenient payment terms	
<b>Assurance</b>		
nangluc1	The staff can earn customers' trust	<i>R</i>
nangluc2	Employees have necessary expertise	<i>R</i>
nangluc3	Employees are friendly towards customers	<i>R</i>
nangluc4	Employees provide good distant technical assistance (by phone, email, etc.).	<i>R</i>
nangluc5	Company offers technical assistance 24/7	
<b>Responsiveness</b>		
dapung1	Quick and safe installation	<i>R</i>
dapung2	Employees are always helpful	
dapung3	All incidents are handled properly as required	
dapung4	Company is ready to satisfy needs for the ADSL service	<i>R</i>
dapung5	After customer's order, the ADSL service is quickly in place	<i>R</i>
<b>Reliability</b>		
tincay1	You always believe the bill is exact	<i>R</i>
tincay2	Charges are always calculated as required by the contract	<i>R</i>
tincay3	You put your trust in billing of the company	<i>R</i>
tincay4	After installation, the system works very well	
tincay5	You have absolute trust in safety and confidentiality of the service	<i>R</i>

(\*) Variables in bold and italics: Observed variables added or adjusted to characteristics of the ADSL service.

*R*: Observed variables retained after CFA test. Underlined variables are originally included in the Servqual scale and removed after tests.