

To cite this article: Ph.D. Nguyen Thi Van Anh, MBA. Nguyen Thi Huong and Nguyen Thanh Dat (2024). Studying The Factors Affecting Customer Satisfaction On Service Quality At Hotels In Soc Son District, Hanoi. International Journal of Education, Business and Economics Research (IJEBER) 4 (2): 1-25

## STUDYING THE FACTORS AFFECTING CUSTOMER SATISFACTION ON SERVICE QUALITY AT HOTELS IN SOC SON DISTRICT, HANOI

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<https://doi.org/10.59822/IJEBER.2024.4201>

### ABSTRACT

In order to study the factors affecting customer satisfaction with service quality at hotels in Soc Son district, Hanoi, the research team used a quantitative research method based on analysis. Analyzing data collected from a survey of 252 customers. The research team used SMARTPLS software to process collected survey data. Research results show that among the 5 factors considered with 95% confidence, there are 3 factors shown to affect customer satisfaction with service quality at hotels in Soc Son district, Hanoi, in which, “Tangible factor” (YTHH) has the strongest influence with an influence level of 0.311; followed by “Reliability” (DTC) with influence level of 0.274; factor “Guarantee” (SDB) has an influence level of 0.157; With 90% confidence, the factor “Service capacity” (NLPV) has an influence of 0.123. The factor “Perceived price” does not have enough statistical significance to conclude about its influence on the dependent variable “Customer satisfaction with service quality at hotels in Soc Son district, Hanoi (SHL). With the results collected, the research team proposed a number of discussions to improve the quality of hotel services in Soc Son, Hanoi to stimulate tourism demand, attract more tourists to Soc Son, and increase exploitation efficiency of the tourism potential here.

**KEYWORDS:** Service quality, hotel, satisfaction, customers, Soc Son, Hanoi.

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Published Online: Mar 2024

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### 1. Raising the Issues

Hotel services are a rapidly growing industry in today's business fields. The fact that customers are an important part of businesses and markets, so to survive, businesses need to provide quality services to bring customer satisfaction. Providing quality service is also an important goal of

hospitality businesses, it affects customer retention and market share expansion of these businesses. (Pham Thi Kim Yen, Phan Thi Nhat Linh, 2022)

Soc Son district, Hanoi is a land with a rich history, preserving many cultural relics, and has many advantages for tourism development. Every year, there are 800-900 thousand domestic visitors and about 1,000 international visitors coming to visit and sightsee in Soc Son. (Tuan Viet, 2023)

Currently, Soc Son district has 204 accommodation establishments with a total of 1,454 rooms. It is expected that the scale by 2030 will reach 5,000 rooms. In 2022, after the Covid-19 epidemic is controlled, the number of visitors to Soc Son will reach 950,000 to 1 million. However, Soc Son district's tourism infrastructure and facilities have not yet received investment attention, and there is no system of high-end hotels or specialized amusement parks, making it difficult to attract tourists, especially high-spending tourists. (doanhnghieptiepthi.vn, 2023)

To improve the quality of tourism in Soc Son district, improving tourist satisfaction through quality hotel services is one of the measures that need attention. Therefore, understanding the factors that affect hotel service quality and finding solutions to satisfy customer needs is something that needs attention and care to contribute to improving the image and efficiency of attracting tourists to Soc Son. In this study, the authors built a model of factors affecting customer satisfaction with service quality at hotels in Soc Son district, Hanoi to answer the question: What factors affect tourist satisfaction with service quality at hotels in Soc Son district, Hanoi? How influential are the factors? With the results collected, the research team proposed a number of discussions to improve the quality of hotel services in Soc Son, Hanoi to stimulate tourism demand, attract more tourists to Soc Son, and increase the exploitation efficiency of the tourism potential here.

## **2. Theoretical basis, overview and research model**

### **2.1. Some definitions**

#### *Service quality*

Service quality is the customer's judgment about the superiority and excellence of an independent existence (Zeithaml & Bitner, 2003). Baksi & Parida (2011); Rakesh (2012) believe that good service quality is a factor that affects customer satisfaction. Many researchers and service marketing experts have paid a lot of attention to this area, Parasuraman, A., Zeithaml, V.A. & Berry, L. (1998) call this the most effective competitive tool, Clow & Vorhies (1993) call this the blood vessel that feeds the organization.

Service quality is important in measuring customer satisfaction (Dandotiya, Aggarwal, & Gopal, 2020). Customer consumption behavior is closely related to the overall evaluation of the service or product (Oliver, 1980). Service quality greatly affects customer satisfaction and organizational success (Zhong & Moon, 2020). High service quality can contribute to enhanced customer satisfaction (Zhao & Huddleston, 2012). Many studies have identified the close relationship between service quality and customer satisfaction (Ha, 2021; Loureiro & González, 2008).

### *Customer satisfaction*

Hansemark& Albinson (2014) introduced the concept of customer satisfaction with service quality as the customer's overall perception of the service providing company, or the change in attitude with the difference between what the customer predicts to receive relative to what they receive, with respect to the satisfaction of goals, requirements or desires.

Service providers often strive to satisfy customers for their own revenue and efficiency (Ali & et al, 2016). Customer satisfaction can be described by a detailed evaluation of the service/product depending on the experience of purchasing and using it over time (Khadka & Maharjan, 2017).

According to SERVPERF model of Cronin and Taylor (1992), 5 factors affecting customer satisfaction with service quality include: Tangibles; Responsiveness; Assurance; Empathy; and Reliability. Tangibles represent the completeness and modernity of the enterprise's equipment and materials; Responsiveness provide an objective assessment of the business's ability to be willing to help service users and resolve complaints effectively; Assurance measures the ability to make customers feel secure when using the service; Empathy Measure the level of care and attention for each individual when they use the service; Reliability evaluates the capacity to provide and perform services in accordance with commitments (Parasuraman et al, 1998).

### *Hotel service quality*

Based on perceptions, hotel service quality is the customer's assessment. Drawn while "consuming" services: the attitude of direct service staff, the appearance of the technical facilities system...Based on experience, hotel service quality is assessed by guests. Drawn after using and experiencing the services provided by the hotel. (lotushotel.vn, 2024)

According to Dinh Anh Vu (2024), hotel service quality can be evaluated based on many subjective and objective factors as follows:

Hotel service quality is based on perceptions, through customer assessments drawn during the process of experiencing services at the hotel, specifically the perception of the attitude of direct service staff, the comfort, spaciousness, quality of technical facilities.

Hotel service quality can be based on experience, which is the customer's assessment drawn after using and experiencing the services provided by the hotel.

The quality of hotel services is also reflected through the features that hotel services provide, making them "visible and touchable" to customers, such as: the water temperature in the swimming pool is always adjusted to a suitable level. Guests do not feel cold when swimming in winter, room staff will proactively use vanilla scented room spray if they know that guests love this scent, the taste of food and drinks served in the restaurant.

Hotel service quality is based on customer trust, reflected in customer reviews, creating the hotel's reputation and reputation in the market. Customers often tend to trust the service quality of hotels with good reputations.

From the perspective of service consumers, hotel service quality is the level of customer satisfaction. A hotel with good service quality will satisfy and satisfy customers based on many factors: facilities, service attitude, reputation, and customers' own experiences after using the service.

## 2.2. Research overview

Many empirical studies apply the SERVQUAL model to study factors affecting customer satisfaction with service quality in general and hotel service quality in particular. The research team conducted an overview of the factors raised in the studies, and are shown in Table 1 below:

**Table 1. Overview of research on factors affecting customer satisfaction with service quality**

	Pham Thi Kim Yen, Phan Nhat Linh (2022)	Le Gia Bao et al (2017)	Nguyen Van Thuy (2020)	Nguyen Thi Thanh Huong et al (2023)	Do Van Ly & et al (2023)	Parasuraman, A., Zeithaml, V.A. & Berry, L. (1998)	Phan Van Phung (2011)	Babita Kumar et al (2011)	Arrilla Akbar (2006)	Nguyen The Huy (2007)	Suzana Markovic & Sanja Raspor (2013)
Tangibles/ Tangible means / Facilities	x	x	x	x	x	x	x	x	x	x	x
Reliability	x	x	x		x	x	x	x	x	x	x
Service capacity	x	x	x			x	x	x	x	x	x
Assurance	x				x						
Empathy / Willingness to help	x	x	x		x	x	x	x	x	x	x
Responsiveness		x	x			x	x	x	x	x	x

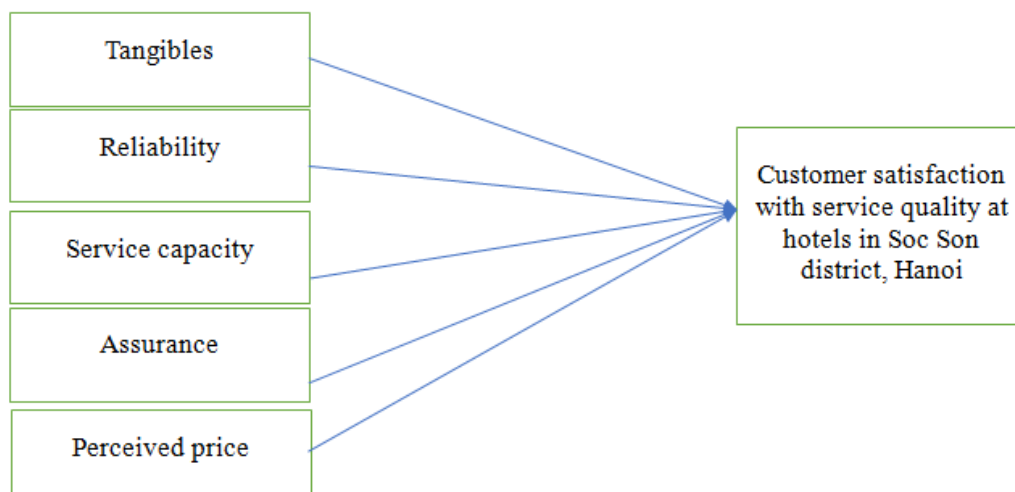
Perceived price/Service price		x		x	x						
Room service department				x							
Security and safety when staying at the hotel				x							
Evaluation of hotel employee satisfaction				x							
The response					x						

Source: Compiled by the research team

### 2.3. Model, hypotheses and research scales

Based on theory and research overview, the article puts 5 independent variables into the model, including: Tangibles (YTHH); Reliability (DTC); Service capacity (NLPV); Assurance (SDB); Perceived price (GCCN), impact on the dependent variable is “Customer satisfaction with service quality at hotels in Soc Son district, Hanoi” (SHL).

**Figure 1. Proposed research model**



Source: Research team's proposal

### Research hypothesis:

Hypothesis H1: Tangible factors have a positively correlated impact on customer satisfaction with service quality at hotels in Soc Son district, Hanoi (SHL)

Hypothesis H2: Reliability (DTC) has a positively correlated impact on customer satisfaction with service quality at hotels in Soc Son district, Hanoi (SHL)

Hypothesis H3: Service capacity (NLPV) has a positively correlated impact on customer satisfaction with service quality at hotels in Soc Son district, Hanoi (SHL)

Hypothesis H4: Assurance (SDB) has a positively correlated impact on customer satisfaction with service quality at hotels in Soc Son district, Hanoi (SHL)

Hypothesis H5: Perceived price (GCCN) has a positively correlated impact on customer satisfaction with service quality at hotels in Soc Son district, Hanoi (SHL)

**Table2. Basis for forming variables and factor scales in the model**

STT	Encode	Observed variables	References
<b>I</b>	<b>YTHH</b>	<b>Tangibles</b>	Arrilla Akbaba (2006); Suzana Markovie& Sanja Raspor (2013); Babita Kumar et al (2011); Phan Van Phung (2011); Nguyen The Huy (2007); Parasuraman et al (1988); Le Gia Bao et al (2017).
1	YTHH1	Hotel facilities and equipment	
2	YTHH2	Appearance and style of hotel staff	
3	YTHH3	Location of the hotel	
4	YTHH4	The hotel's landscape environment	
5	YTHH5	Quality of hotel food	
6	YTHH6	Hotel room quality	
<b>II</b>	<b>DTC</b>	<b>Reliability</b>	Arrilla Akbaba (2006); Suzana Markovie& Sanja Raspor (2013); Babita Kumar et al (2011); Phan Van Phung (2011); NguyenThe Huy (2007); Parasuraman et al (1988); Le Gia Bao et al (2017).
7	DTC1	Trust the safety and security of the hotel	
8	DTC2	Staff provide complete and accurate information	
9	DTC3	Trust the hotel's ability to solve problems for guests	Arrilla Akbaba (2006); Suzana Markovie& Sanja Raspor (2013); Babita Kumar et al (2011); Phan Van Phung (2011); Nguyen The Huy (2007); Parasuraman et al
<b>III</b>	<b>NLPV</b>	<b>Service capacity</b>	
10	NLPV1	The friendliness, politeness, and courtesy of the service staff	
11	NLPV2	Knowledge and understanding of service	

		staff	(1988); Le Gia Bao et al (2017).
12	NLPV3	Ensure the privacy of visitors	
13	NLPV4	Ensuring the safety of guests' valuables	
<b>IV</b>	<b>SDB</b>	<b>Assurance</b>	Arrilla Akbaba (2006); Suzana Markovie& Sanja Raspor (2013); Babita Kumar et al (2011); Phan Van Phung (2011); Nguyen The Huy (2007); Parasuraman et al (1988); Le Gia Bao et al (2017).
14	SDB1	Provide prompt and timely services	
15	SDB2	Willingness to help visitors	
16	SDB3	Ready to respond to visitors' requests	
<b>V</b>	<b>GCCN</b>	<b>Perceived price</b>	Zeithaml & Bitner (2003); Le Gia Bao et al (2017).
17	GCCN1	Hotel room rental prices are relatively cheaper than other hotels (in Vietnam)	
18	GCCN2	Fees for all types of services included in the hotel are relatively cheaper than other hotels (in Vietnam).	
19	GCCN3	Food and beverage costs in the hotel are relatively cheaper than other hotels (in Vietnam)	
20	GCCN4	The price list is clear and there are not many changes when calculating the bill	
21	GCCN5	Prices and fees for services in the hotel are consistent with the quality	
<b>VI</b>	<b>SHL</b>	<b>Satisfaction</b>	Babita Kumar & et al (2011); Phan Van Phung (2011); Le Gia Bao et al (2017).
22	SHL1	Guest satisfaction with tangible hotel elements	
23	SHL2	Guest satisfaction with hotel service availability	
24	SHL3	Guest satisfaction with the hotel's ability to perform services as committed	
25	SHL4	Guest satisfaction with hotel staff behavior	



26	SHL5	Guest satisfaction with the hotel's care and attention	
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*Source: Compiled and proposed by the research team*

### 3. Research methodology

Based on theory and research overview of factors affecting customer satisfaction with hotel service quality, the factors included in the research model include 5 independent variables: *Tangibles (YTHH)*; *Reliability (DTC)*; *Service capacity (NLPV)*; *Assurance (SDB)*; *Perceived price (GCCN)*; impact on the dependent variable is “*Customer satisfaction with service quality at hotels in Soc Son district, Hanoi*” (*SHL*).

The survey was built with a 5-point Likert scale, with:

1. *Completely dissatisfied*
2. *Dissatisfied*
3. *Normal*
4. *Satisfied*
5. *Completely satisfied*

Quantitative research method was conducted to collect opinions of customers who have stayed at hotels in Soc Son district on customer satisfaction about the quality of service at the hotel.

After developing the survey questionnaire, the research team conducted a random pilot survey of 10 customers who had stayed at hotels in Soc Son. Preliminary survey results showed that opinions agreed with factors included in the model.

Due to limited time and resources for the survey, the author used a convenience sampling method. The sample size was determined according to the rules of Comrey and Lee (1992), and also referred to the rules of Hoang Trong & Chu Nguyen Mong Ngoc (2005). With 26 parameters (observed variables) needing to conduct factor analysis, the minimum number of samples needed is  $26 \times 5 = 130$  observed samples; the subjects surveyed were customers who had stayed at hotels in Soc Son district, Hanoi. From the viewpoint of collecting as many observation samples as possible to ensure the stability of the impact, based on the ability to collect samples, the research team decided the number of ballots to be distributed is  $n = 300$ . Questionnaires are delivered to survey subjects in the form of online sending combined with distributing ballots directly to survey subjects. The number of ballots received was 289, of which 252 valid votes (guaranteed to be greater than 130 votes) were included in the analysis.

#### 3.1. Data processing method

Quantitative research method was conducted to process research data collected from a survey of customers who have stayed at hotels in Soc Son district, Hanoi. The structural regression equation has a general form:

$$SHL = a*YTHH + b*DTC + c*NLPV + d*SDB + e*GCCN$$



SMARTPLS software is used to test hypotheses and evaluate the impact of factors.

### **Step 1: Evaluating Measurement Model**

Evaluating measurement model based on examining values of reliability, quality of observed variable, convergence, and discriminant

#### **- Testing the quality of observed variables (Outer Loadings)**

Outer Loadings of observed variables are indicators showing the degree of association between observed variables and latent variables (proxy variables). Basically, outer loadings in SMARTPLS are the square root of the absolute value of R<sup>2</sup> linear regression from the latent variables to the sub-observed variables.

Hair et al. (2016) suggest that the outer loadings should be greater than or equal to 0.708 observed variables that are quality. To make it easier to remember, the researchers rounded off the threshold to 0.7 instead of the number 0.708.

#### **- Evaluating Reliability**

Evaluating the reliability through SMARTPLS by two main indicators, Cronbach's Alpha and Composite Reliability (CR). Composite Reliability (CR) is preferred by many researchers over Cronbach's Alpha because Cronbach's Alpha underestimates the reliability compared with CR. Chin (1988) claims that in exploratory research CR must be over 0.6. For confirmed studies, the 0.7 threshold is the appropriate level of CR (Henseler & Sarstedt, 2013). Other researchers agree that 0.7 is the appropriate threshold for the vast majority of cases such as Hair et al. (2010), and Bagozzi & Yi (1988).

Thus, the reliability through SMARTPLS is shown by Cronbach's Alpha  $\geq 0.7$  (DeVellis, 2012); Composite Reliability CR  $\geq 0.7$  (Bagozzi & Yi, 1988).

#### **- Testing Convergence**

Evaluating Convergence on SMARTPLS is based on Ave (Average Variance Extracted). Hock & Ringle (2010) claim that a scale reaches a convergence value if AVE reaches 0.5 or higher. This level of 0.5 (50%) means that the average latent variable will explain at least 50% of the variation of each sub-observed variable. Thus, convergence is evaluated by Average Variance Extracted AVE  $\geq 0.5$  (Hock & Ringle, 2010).

#### **- Testing Discriminant Validity**

Discriminant value is used to consider whether a research variable is really different from other research variables in the model. To evaluate the discriminant validity, Sarstedt & et al (2014) said that considering two criteria including cross-loadings and the measurement of Fornell and Larcker (1981).

Cross-loading coefficients are often the first approach to evaluating the discriminant validity of indicators (observed variables) (Hair, Hult, et al., 2017). The load factor of the observed variable

(indicator) linked in the factor (latent variable) should be greater than any of its cross-load factors (its correlation) in the other factors.

Fornell and Larcker (1981) recommend that discriminant is ensured when the square root of AVE for each latent variable is higher than all correlations between latent variables. In addition, Henseler & et al (2015) used simulation studies to demonstrate that discriminant validity is better evaluated by the HTMT index that they developed.

With the HTMT index, Garson (2016) said that the discriminant validity between two latent variables is guaranteed when the HTMT index is less than 1. Henseler & et al (2015) propose that if this value is below 0.9, the discriminant validity will be guaranteed. Meanwhile, Clark & Watson (1995) and Kline (2015) used a stricter standard threshold of 0.85. SMARTPLS preferred a threshold of 0.85 in the evaluation.

### **- Testing Multicollinearity**

In this study, the author uses a scale related to multicollinearity as a variance magnification factor (VIF). Very high levels of multicollinearity are indicated by VIF values  $\geq 5$ ; the model does not have multicollinearity when VIF indicators  $< 5$  (Hair et al., 2016).

### **Step 2: Evaluating Structural Model**

After evaluating the satisfactory measurement model, evaluate the structural model through the impact relationship, path coefficient, R squared, and f squared.

### **- Evaluating impactful relationships**

To evaluate impact relationships, use the results of Bootstrap analysis. Based mainly on two columns (1) Original Sample (normalized impact factor) and (2) P Values (sig value compared to 0.05 significance level).

- Original Sample: Standardized impact factor of the original data. SMARTPLS have no unstandardized impact factor.
- Sample Mean: The average standardized impact factor of all samples from Bootstrap.
- Standard Deviation: Standard deviation of the standardized impact factor (according to the original sample).
- T Statistics: Test value t (test student the meaning of the impact).
- P Values: The significance level of the T Statistics. This significance level is considered with comparative thresholds such as 0.05, 0.1, or 0.01 (usually used as 0.05).

Evaluating the level of interpretation of the independent variable for the dependent variable by R<sup>2</sup> coefficient (R square). To evaluate the R<sup>2</sup> coefficient, we will use the results of the PLS Algorithm analysis. The R<sup>2</sup> value evaluates the predictive accuracy of the model and shows the level of interpretation of the independent variable for the dependent variable. R square is between 0 and 1, the closer to 1 indicates the more independent variables that account for the dependent variable (Hair, Hult, et al, 2017).

In addition, in order to evaluate the influence of each factor, the team determined the distance value and average value of each factor, and determined which response threshold the average score falls within.

Distance value = (Maximum - Minimum) / n = (5-1)/5 = 0.8

Evaluation thresholds are based on the average score value:

+ 1.00 - 1.80: Completely dissatisfied

+ 1.81 - 2.60: Dissatisfied

+ 2.61 - 3.40: Normal

+ 3.41 - 4.20: Satisfied

+ 4.21 - 5.00: Completely satisfied

#### **4. Research results**

##### ***4.1. General introduction about Soc Son and facilities serving tourism development***

Soc Son district has an area of 306.5 km<sup>2</sup>, including Soc Son town and 25 commune-level administrative units, 25 km north of the center of Hanoi capital, bordering Thai Nguyen and Vinh Phuc provinces, bordering Bac Ninh through the Cau River and Ca Lo River, bordering Bac Giang through the Cau River. Soc Son has favorable traffic conditions: Noi Bai international airport, many important traffic roads passing through. Soc Son has a system of hills and mountains, pine forests, rivers, lakes, dams and many special revolutionary, cultural, historical relics and unique folk festivals that have created a charming and favorable mountain and water landscape which are beneficial for tourism development. However, currently Soc Son tourism is still not well known and has not been invested properly to its potential. Many advantages and potentials have not been exploited or have been exploited but not effectively. In recent years, Soc Son has focused on exploiting the advantages and potential of spiritual tourism, eco-tourism, weekend resort tourism, experiential tourism... (Vu Thi Hoan, Ha Thuy Linh, Do Thi Ngan, 2023)

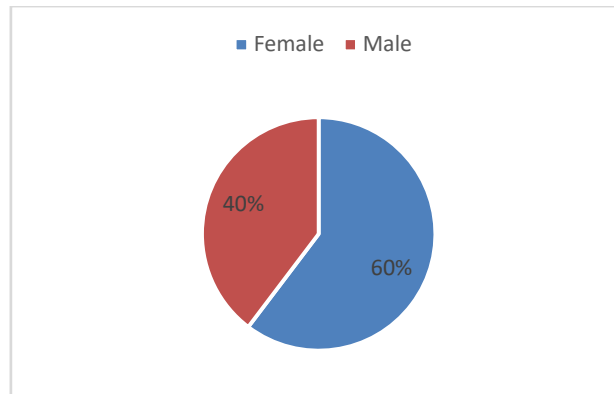
Technical facilities serving tourism development in Soc Son are relatively abundant in both quantity and quality. According to statistics, in the district there are 7 3-star hotels, 6 2-star hotels, more than 63 home stays, villas and more than 75 motels; High-quality accommodation facilities are concentrated mainly around lakes, eco-tourism sites, and cultural-spiritual tourism. In the district, there are 03 international travel businesses, 05 domestic travel businesses and 03 transportation businesses. In the district, many famous tourist destinations have been formed in Hanoi and surrounding areas such as Rom village eco-tourism area, Long Viet agricultural park, eco-tourism area around Dong Quan lake, Soc temple, Viet Phu Thanh Chuong. (Vu Thi Hoan, Ha Thuy Linh, Do Thi Ngan, 2023)

##### ***4.2. Description of survey participants***

There were 252 people participating in the survey with the survey method being convenient and random by distributing ballots online and in person. The survey was sent to customers who are traveling to Soc Son or those who have traveled to Soc Son and the research team has contact information via zalo, facebook, or email...At the same time, the group went directly to tourist attractions and hotels in the area to distribute ballots directly.

The results showed that there were 152 female customers (60.3%), 100 male customers (39.7%).

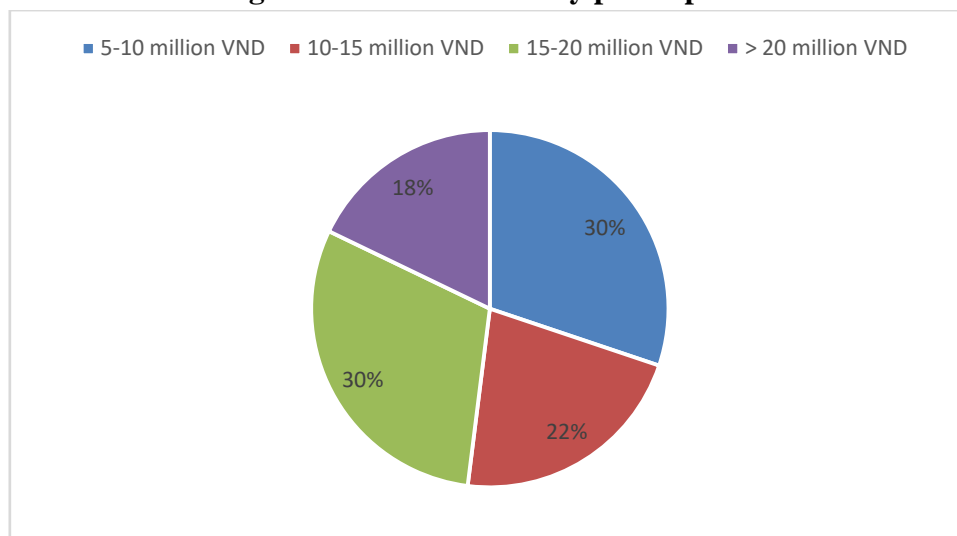
**Figure 3. Gender of survey participants**



*Source: The survey results*

Regarding the income of survey participants, the number of people with income of 5-10 million VND is 76 people (30%), 10-15 million VND is 55 people (22%), 15-20 million VND is 76 people (30%) and more than 20 million VND is 45 (18%).

**Figure 4. Income of survey participants**



*Source: The survey results*

Regarding the type of hotel that survey participants stayed in Soc Son, 156 people (61.9%) are and have stayed in 3-star hotels, 96 people are and have stayed in 2-star hotels (38.1%).

### **4.3. Results of testing the research model**

#### **4.3.1. Results of assessing the quality of observed variables in the measurement model**

##### **4.3.1.1. Check the quality of observed variables**

The quality of observed variables is assessed through the external loading factor (outer loadings). In the initial data run, scales DTC3, GCCN5, SHL1 had outer loadings less than 0.7, so the three scales DTC3, GCCN5, SHL1 were removed from the model. The research team ran the data again a

second time, the quality of observed variables affecting customer satisfaction with service quality at hotels in Soc Son district, Hanoi is shown in Table 3.

**Table 3. Outer loadings of factors affecting customer satisfaction with service quality at hotels in Soc Son district, Hanoi**

	DTC	GCCN	NLPV	SDB	SHL	YTHH
DTC1	0.857					
DTC2	0.900					
GCCN1		0.836				
GCCN2		0.787				
GCCN3		0.834				
GCCN4		0.709				
NLPV1			0.827			
NLPV2			0.866			
NLPV3			0.865			
NLPV4			0.756			
SDB1				0.849		
SDB2				0.897		
SDB3				0.795		
SHL2					0.863	
SHL3					0.829	
SHL4					0.898	
SHL5					0.836	
YTHH2						0.793
YTHH3						0.825
YTHH4						0.757
YTHH5						0.779
YTHH6						0.739
YTHH1						0.791

*Source: Testing results of the research team*

Results from Table 3 show the outer loadings of all total variable correlation coefficients of variables affecting customer satisfaction with service quality at Soc Son hotel, Hanoi (all > 0.7) (Hair & et al, 2016) shows that the observed variables are meaningful.

#### **4.3.1.2. Test the reliability of the scale**

Evaluate the scale reliability of factors affecting customer satisfaction with service quality at Soc Son hotel, Hanoi on PLS-SEM through two main indices: Cronbach's Alpha and Composite Reliability (CR).

**Table4. Reliability coefficient (Cronbach's Alpha) and composite reliability of factors affecting customer satisfaction with service quality at hotels in Soc Son district, Hanoi**

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
<b>DTC</b>	<b>0.707</b>	<b>0.720</b>	<b>0.871</b>	<b>0.772</b>
<b>GCCN</b>	<b>0.803</b>	<b>0.817</b>	<b>0.871</b>	<b>0.629</b>
<b>NLPV</b>	<b>0.849</b>	<b>0.856</b>	<b>0.898</b>	<b>0.689</b>
<b>SDB</b>	<b>0.808</b>	<b>0.853</b>	<b>0.885</b>	<b>0.719</b>
<b>SHL</b>	<b>0.879</b>	<b>0.879</b>	<b>0.917</b>	<b>0.734</b>
<b>YTHH</b>	<b>0.872</b>	<b>0.876</b>	<b>0.904</b>	<b>0.610</b>

*Source: Testing results of the research team*

According to Table 4, after analyzing the reliability test using Cronbach's Alpha coefficient of the factor, the result is: Reliability (DTC) reached 0.707; Perceived price (GCCN) reached 0.803; Service capacity (NLPV) reached 0.849; Assurance (SDB) reached 0.808; Tangibles (YTHH) reached 0.872; Satisfaction with service quality at Soc Son Hotel, Hanoi (SHL) reached 0.879. Thus, all scales satisfy the condition  $> 0.7$  (DeVellis, 2012) and do not violate any rules for eliminating variables, so no variables are eliminated and are acceptable in terms of reliability.

The Composite Reliability (CR) of all observed variables is also  $> 0.7$  (Bagozzi & Yi, 1988) (Table 2). Therefore, the scale is reliable, has analytical significance and is used in subsequent factor analysis.

#### **4.3.1.3. Convergence**

According to the data analysis results in Table 4, the average variance extracted index AVE (Average Variance Extracted) of the factor: Reliability (DTC) reached 0.707; Perceived price (GCCN) reached 0.629; Service capacity (NLPV) reached 0.689; Assurance (SDB) reached 0.719; Tangible factor (YTHH) reached 0.610; Satisfaction with service quality at Soc Son Hotel, Hanoi (SHL) reached 0.734. Thus, the average variance extracted index AVE (Average Variance Extracted) of all variables is  $> 0.5$  (Hock & Ringle, 2010), which shows that the model satisfies the convergence conditions.

#### **4.3.1.4. Discriminant Validity**

Results in Table 5 of Fornell-Larcker indicators of the model researching factors affecting customer satisfaction with service quality at hotels in Soc Son district, Hanoi: Reliability (DTC); Perceived price (GCCN); Service capacity (NLPV); Assurance (SDB); Tangible factors (YTHH); Satisfaction with service quality at Soc Son Hotel, Hanoi (SHL) ensures discrimination because all AVE square root values on the diagonal are higher than their off-diagonal values. Therefore, in terms of discriminant validity, the two criteria including the cross-loading coefficient and Fornell and Larcker's criteria have satisfied the condition.

**Table5. Fornell-Larcker criteria of the model research factors affecting customer satisfaction with service quality at hotels in Soc Son district, Hanoi**

	DTC	GCCN	NLPV	SDB	SHL	YTHH
DTC	0.879					
GCCN	0.366	0.793				
NLPV	0.632	0.443	0.830			
SDB	0.396	0.694	0.401	0.848		
SHL	0.614	0.360	0.568	0.419	0.857	
YTHH	0.703	0.469	0.744	0.447	0.642	0.781

*Source: Testing results of the research team*

The test results in table 6 show the results of the HTMT index on the discrimination between factors affecting customer satisfaction with service quality at Soc Son hotel, Hanoi. According to Garson (2016) then the discriminability of the variables is guaranteed (because all are <1). According to Henseler et al (2015), if this value is below 0.9, the discriminant value will be guaranteed. The HTMT value in Table 6 shows the discrimination of all factors included in the model.

**Table6. The HTMT index of the model studies factors affecting customer satisfaction with service quality at hotels in Soc Son district, Hanoi.**

	DTC	GCCN	NLPV	SDB	SHL	YTHH
DTC						
GCCN	0.483					
NLPV	0.811	0.534				
SDB	0.509	0.869	0.485			
SHL	0.773	0.420	0.655	0.482		
YTHH	0.888	0.563	0.861	0.528	0.722	

*Source: Testing results of the research team*

#### 4.3.1.5. Function value $f^2$

Function value  $f^2$  shows the influence of the structure (factor) when removed from the model. Values  $f^2$  with 0.02, 0.15, and 0.35 correspond to small, medium, and large influence values (Cohen, 1988) of the exogenous variable. If effect size < 0.02, it is considered to have no influence.

**Table7. Value summary table  $f^2$**

	DTC	GCCN	NLPV	SDB	SHL	YTHH
DTC					0.069	
GCCN					0.002	
NLPV					0.012	
SDB					0.024	
SHL						
YTHH					0.064	

*Source: Testing results of the research team*



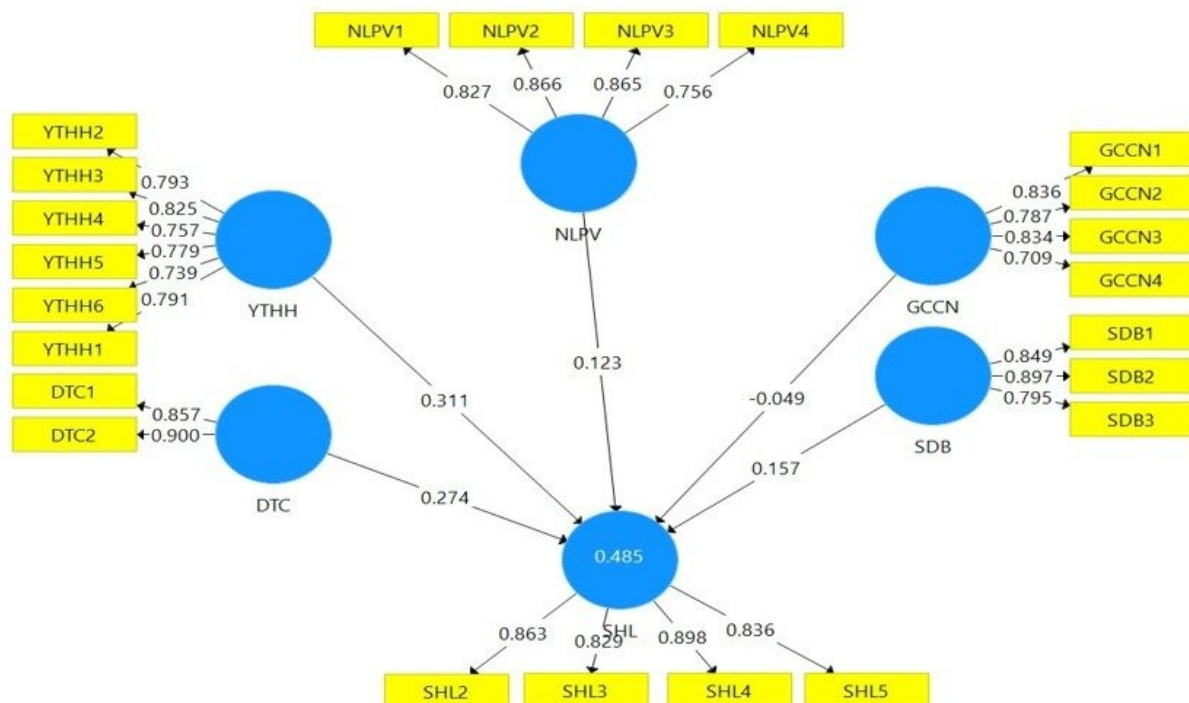
In this model, in Table7 we see the factors Reliability (DTC) (0.069); Tangible factor (YTHH) (0.064); Assurance (SDB) (0.024) has a small influence on satisfaction with service quality at hotels in Soc Son district, Hanoi (SHL) (with  $0.02 < f^2 < 0.015$ ). Factor Perceived Price (GCCN) (0.002); Service capacity (NLPV) (0.012) with  $f^2 < 0.02$  is considered to have no impact on service capacity.

#### 4.3.2. Results of assessing the level of influence using the structural model

##### 4.3.2.1. Evaluate influence relationships

The relationship and level of influence of factors affecting customer satisfaction on service quality of hotels in Soc Son district, Hanoi on SMARTPLS is shown by Figure 5.

**Figure 5. Factors affecting customer satisfaction with service quality at hotels in Soc Son district, Hanoi**



Source: Testing results using SMARTPLS by the research team

The results of the Bootstrap analysis to evaluate the influence relationships are shown in Table 8. Accordingly, three factors “Reliability (DTC)”, “Assurance (SDB)”, “Tangible factors (YTHH)” has  $P$  Values  $< 0.05$ , and factor “Service capacity” has  $P$  Values  $< 0.1$ , this reflects that these factors are statistically significant enough to show a relationship that affects customer satisfaction in terms of service quality at hotels in Soc Son district, Hanoi (Hypotheses  $H1$ ,  $H2$ ,  $H3$ ,  $H4$  are accepted). Factors “Perceived price” has  $P$  Values  $> 0.1$ , this reflects that this factor is not statistically significant enough to show the relationship to customer satisfaction with service quality at hotels in Soc Son district, Hanoi (Hypothesis  $H5$  is not accepted).

**Table8. Structural model path coefficients (Path Coefficient)**

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ( O/STDEV )	P Values
<b>DTC -&gt; SHL</b>	0.274	0.272	0.063	4.364	<b>0.000</b>
<b>GCCN -&gt; SHL</b>	-0.049	-0.042	0.070	0.703	<b>0.482</b>
<b>NLPV -&gt; SHL</b>	0.123	0.120	0.074	1.672	<b>0.095</b>
<b>SDB -&gt; SHL</b>	0.157	0.156	0.062	2.514	<b>0.012</b>
<b>YTHH -&gt; SHL</b>	0.311	0.312	0.077	4.059	<b>0.000</b>

Source: Testing results using SMARTPLS by the research team

The test results in table 8 show that with reliability 95%, “*Tangible factor*”(YTHH) has the strongest influence on customer satisfaction regarding service quality at hotels in Soc Son district, Hanoi, influence level 0.311; Next comes the factor “*Reliability*” (DTC) with an influence of 0.274; factor “*Assurance*” (SDB) has an influence level of 0.157; With reliability 90%,factor “*Service capacity*”(NLPV) has an influence level of 0.123. Factor “*Perceived price*”not statistically significant enough to draw conclusions about their influence on the dependent variable “*Customer satisfaction with service quality at hotels in Soc Son district, Hanoi*”.

Thus, we have the regression equation as follows:

$$\text{SHL} = 0.274*\text{DTC} + 0.123*\text{NLPV} + 0.157*\text{SDB} + 0.311*\text{YTHH}$$

#### 4.3.2.2. Evaluate the overall coefficient of determination $R^2$ (R square)

The results of PLS Algorithm analysis give the  $R^2$  value, reflecting the level of explanation of the independent variable for the dependent variable.  $R^2$  measures the overall coefficient of determination (R-square value), which is an index to measure the degree of model fit of the data (the model’s explanatory power). According to Hair & et al (2010) suggested R-square value at 0.75, 0.50 or 0.25.

**Table9. Explanation coefficient of the independent variable for the dependent variable (R Square)**

	R Square	R Square Adjusted
<b>SHL</b>	0.485	0.475

Source: Testing results of the research team

The results from table 9 show  $R^2$  is 0.485 and adjusted  $R^2$  is 0.475 is appropriate in this research case, so the independent variables in the model explain 48.5% “*Customer satisfaction with service quality at hotels in Soc Son district, Hanoi*”.

#### 4.3.2.3. Evaluate Reliability index (SRMR)

Standardized Root Mean Square Residual (SRMR): This index indicates the suitability of the research model. According to Hu & Bentler (1999), normally a suitable model will have an SRMR value of less than 0.08.

**Table10. Reliability Standardized Root Mean Square Residual index (SRMR)**

	Saturated Model	Estimated Model
SRMR	0.076	0.076

*Source: Testing results of the research team*

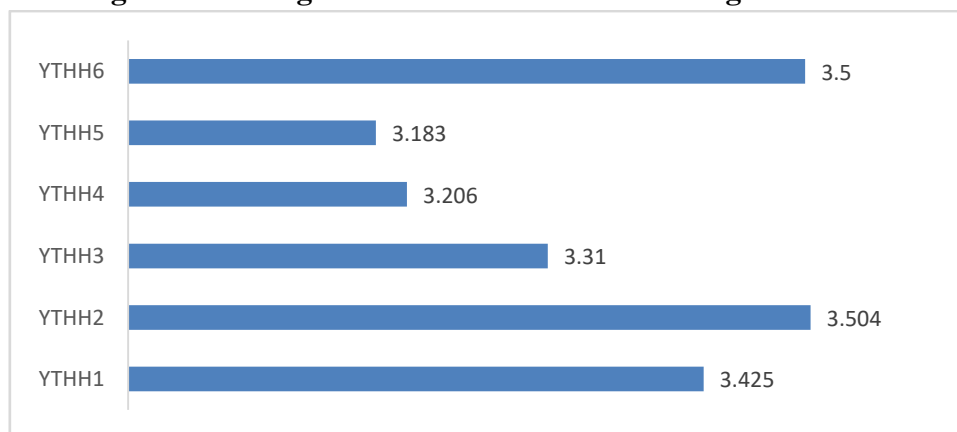
Through the SRMR research results in Table 10 of the research model is 0.076, smaller than 0.08. Therefore, this model is suitable for data analysis.

## 5. Discuss research results

Among the 5 factors considered, there are 3 factors at the 5% significance level (Reliability 95%) showing that they have an impact on customer satisfaction with service quality at hotels in Soc Son district, Hanoi. In which, “*Tangible factor*”(YTHH) has the strongest influence on customer satisfaction with service quality at hotels in Soc Son district, Hanoi, with an influence of 0.311, meaning that when tangible factor increases by 1 unit, satisfaction increases by 0.311 units; Next comes the factor “*Reliability*” (DTC) with an influence of 0.274, meaning that when Reliability increases by 1 unit, satisfaction increases by 0.274 units; factor “*Assurance*” (SDB) has an impact level of 0.157, meaning that when assurance increases by 1 unit, satisfaction increases by 0.157 units; With 90% reliability, factor “*Service capacity*”(NLPV) has an impact of 0.123, meaning that when service capacity increases by 1 unit, satisfaction increases by 0.123 units.

“*Tangible factor*”(YTHH) has the strongest influence on customer satisfaction regarding service quality at hotels in Soc Son district, Hanoi.

**Figure 6. Average score value of the scale “Tangible factor”**



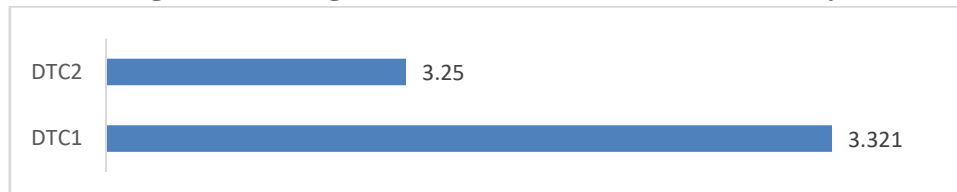
*Source: Compiled and calculated from survey results*

With tangible factor, 3 scales “Appearance and style of hotel staff” YTHH2, “Quality of hotel rooms” YTHH6, “Hotel facilities and equipment” were rated by survey participants at a low level. “Satisfied” therefore hotels need to continue to improve quality, facilities, take advantage of existing resources to improve service quality and meet customer needs. In addition, the factor “Hotel facilities and equipment” is rated at “Normal” YTHH1 and the remaining scales “Location of the hotel” YTHH3, “Landscape environment of the hotel”. hotel” YTHH4 and “Quality of hotel food” YTHH5 are at the “Unsatisfied” rating, so hotels need solutions to improve the landscape around the hotel, such as needing a layout of ornamental plants, taking care of the hotel’s miniature

landscapes, and especially needing to improve the hotel menu to attract more guests, to satisfy guests' needs and increase tourist satisfaction when coming to Soc Son, Hanoi.

Factor **“Reliability”** (DTC) with the second highest impact on customer satisfaction regarding service quality at hotels in Soc Son district, Hanoi.

**Figure7. Average score value of the scale “Reliability”**

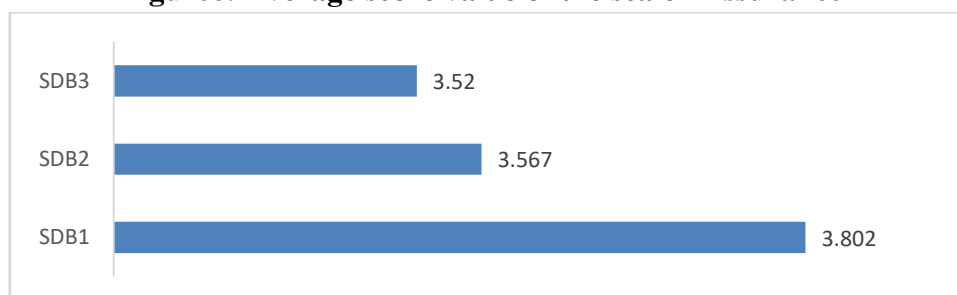


*Source: Compiled and calculated from survey results*

The two scales “Trust in the safety and security of the hotel” DTC1 and “Employees provide complete and accurate information” DTC2, the average score thresholds achieved are 3.321 and 3.25, both at the “Normal” threshold. , this shows that customers do not have a high appreciation for the “Reliability” factor, so hotels need to have clear commitments to customers, and train hotel staff to improve professionalism and increase customer trust and satisfaction. The fact is that currently the hotels in Soc Son are only 2-star and 3-star hotels; there are no 4-5star hotels, so this is also a factor that shows that the district has not yet exploited maximize the tourism potential of the area. There needs to be synchronous planning, strategy and investment support from the local government to exploit, promote and preserve the tourism values of Soc Son.

**“Assurance”** (SDB) has the third level of influence on customer satisfaction with service quality at hotels in Soc Son district, Hanoi.

**Figure8. Average score value of the scale “Assurance”**



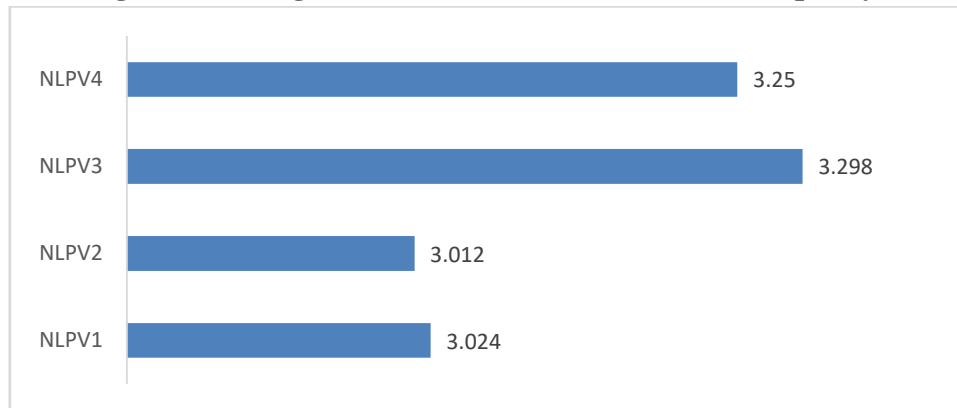
*Source: Compiled and calculated from survey results*

With this factor, all three scales being evaluated by customers are at the “Satisfied” level, in which the factor “Providing prompt and timely services” has the highest rating of 3,802, the factor “Providing timely services” has the highest rating of 3,802, the factor “Willingness to help tourists” 3.567 and “Readiness to respond to visitors’ requests” 3.52. Hotels need to continue to promote these advantages and continue to train hotel staff to ensure the best requirements for customers, to be customer-centered to enhance image, friendliness, and leave a good impressions for domestic

and foreign tourists about tourism in Soc Son in particular, and the image of Vietnamese people in general.

**“Service capacity”**(NLPV) has the fourth level of influence on customer satisfaction with service quality at hotels in Soc Son district, Hanoi.

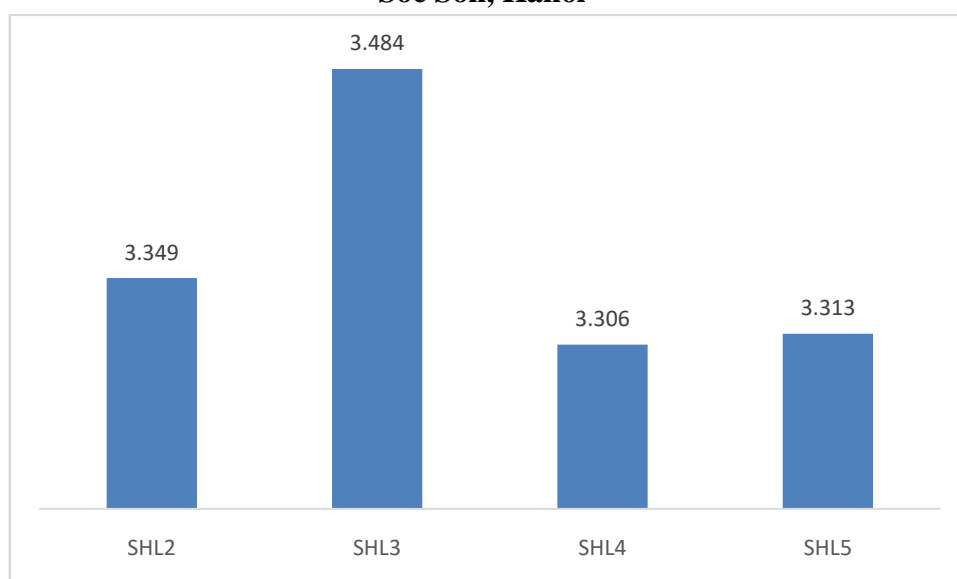
**Figure9. Average score value of the scale “Service capacity”**



*Source: Compiled and calculated from survey results*

All four scales of the Service capacity factor are at the “Normal” level. This shows that hotels in Soc Son need to develop plans to train and develop human resources to participate in service provision activities. Need to train and retrain, regular training for hotel human resources. Improve the level of awareness, communication ability, civilized attitude, and Service capacity for staff, to create good impressions of tourists with people and places with many attractions, and historical relics like in Soc Son.

**Figure 10. Average score value of the scale “Tourist satisfaction with hotel service quality in Soc Son, Hanoi”**



*Source: Compiled and calculated from survey results*

Of the 4 scales included in the review model, only the SHL3 scale “Visitors’ satisfaction with the hotel’s ability to perform services as committed” is rated at a satisfied level, while the other scales are rated at a satisfactory level. Other scales are only rated at “Normal” level. It can also be seen that although the tourism potential is great, currently because the hotels in the area are only guaranteed 2-3 stars, there needs to be many synchronous solutions in improving hotel services quality in particular, and tourism development in general in Soc Son such as:

- *It is necessary to develop infrastructure and technical facilities.* Soc Son needs to promote the construction and development of infrastructure to create conditions for tourism and hotel activities to develop, develop telecommunications infrastructure systems, information technology, commercial infrastructure, and other facilities. Service departments associated with tourist areas and destinations; Developing a system of cultural and entertainment facilities, golf courses.

- *Training and developing human resources.* Focus on training and fostering professional expertise for hotel management leadership teams... in the form of training at domestic institutes and schools, and possibly establishing local associations and groups. Localities jointly invite foreign experts to train in the area or have discussions and seminars to share and in the spirit of connection between units working together in tourism.

- *Innovate and improve the effectiveness and efficiency of state management.* Strengthen inspection, inspection, review and evaluation of hotels and accommodation establishments in Soc Son district, Hanoi. Develop and complete regulations on assignment and decentralization of state management for hotel operations and accommodation units; Develop regulations to coordinate inter-sectoral forces to thoroughly handle the phenomena of price gouging and unhygienic food safety for tourists at hotels and accommodation establishments in Soc Son.

## Conclusion

Initial research results indicate the influence of hotel service quality factors on tourist satisfaction in Soc Son district, Hanoi. The study had a small sample size, with only 252 valid votes included in the analysis of influencing factors. Along with the fact that the survey is convenient and random, this is also a limitation in sample size and questionnaire quality. In addition, with 5 factors included in the new model, it only explains 48.5% of “Customer satisfaction with service quality at hotels in Soc Son district, Hanoi” and has 4 factors are statistically significant, one factor is not statistically significant enough to conclude about the level of influence. Shows that there are other factors that will affect customer satisfaction with service quality at hotels in Soc Son district, Hanoi. The research results are considered a direction for further research on customer satisfaction with service quality at hotels in general and in Soc Son district, Hanoi in particular. In the future, the research team can expand the survey, research additional factors and purposefully select and filter survey subjects to increase sample size and quality of survey questionnaires, as well as the model’s level of explanation.



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