

# Determining the affecting factors of service quality to logistics operation by Structural Equation Modelling (SEM) under RCEP Implementation, a case study of Beibu Gulf

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**Abstract:** The service quality of a logistics operation is a key research factor. According to Parasuraman in 1988, there are 5 dimensions about the service quality. In this paper will detect the affecting factors by collecting data from 1560 customers who experienced the service of Beibu Gulf Port Group, Guangxi, China. We used structural equation modeling (SEM) to test whether the service quality factors would affect the logistics operation or not from tangible, responsiveness, reliable and empathy to assurance. Moreover, with the Regional Comprehensive Economic Partnership (RCEP) has been signed, whether this free trade agreement's effect would affect this Group's service quality or not would be a consideration of this research. And the traditional service quality factors will affect the RCEP implementation or not will be tested, too. The results in the paper show the significance positive in co-relationship and supporting evidences for the Group's future development.

**Keywords:** affecting factors; logistics operation; service quality; Beibu Gulf; Regional Comprehensive Economic Partnership (RCEP); SEM

## 1. Introduction

### 1.1. Introduction of Beibu gulf

Beibu Gulf, one of the major strategic zones of south sea of China, which is containing three major ports, which are Tieshan, Fangcheng, and Qinzhou. These ports are operated by Beibu Gulf Port Group. This area comprises the Port of Fangcheng, the Port of Qinzhou (including Qinzhou Bonded Logistics Park), and the Port of Beihai from west to east. These ports primarily import crude oil, vegetable oils, bitumen, bulk ore, etc. With this precondition, the group applies the port service, and accelerates the free trade zone building in Guangxi Autonomous Region (short as Guangxi as following). Moreover, because Guangxi is the main province to have business with Association of Southeast Asian Nations (ASEAN), this strategic zone will carrying a more significant role for Chinese economic development in the south region.

### 1.2. Introduction of RCEP

The Regional Comprehensive Economic Partnership (RCEP) is a free trade agreement among Asia-Pacific nations. RCEP has 15 members countries (1) Australia, (2) Brunei, (3) Cambodia, (4) China, (5) Indonesia, (6) Japan, (7) South Korea, (8) Laos, (9) Malaysia, (10) Myanmar, (11) New Zealand, (12) the Philippines, (13) Singapore, (14) Thailand, and (15) Vietnam. The 15 member countries account for around thirty percentage of the world's population (2.2 billion people) and around

thirty percentage of global GDP (\$29.7 trillion). It can make it as the largest trade bloc in history. Signed in November 2020, RCEP become as the first free trade agreement among in Asia, including China, Indonesia, Japan, and South Korea which have the largest economies.

The concept RCEP was proposed at the 2011 ASEAN Summit in Bali, Indonesia and more a negotiation were launched during the ASEAN Summit in 2012 at Cambodia. The concept of RCEP was proposed at the 2011 ASEAN Summit in Bali, Indonesia, and further negotiations were launched during the ASEAN Summit in 2012 in Cambodia. At the initial negotiation, India was a part but decided to quit the agreement later. India was invited to join the bloc at any time by other countries who is in the agreement. However, other country or separate customs territory in the region can accede to the pact from 1 July 2023 onward. The agreement was formally signed on 15 November 2020 at the virtual ASEAN Summit hosted by Vietnam. For the first ten ratifying countries, the trade pact took effect on 1 January 2022.

The RCEP has proposed including countries with a mix of high, middle, and low incomes. The expectation is that signatories between countries will eliminate tariffs on imports by around ninety percent within twenty years, resulting in an increase in force, common rule, trade, and intellectual property. From this cooperation, they predicted that the economic would increase with growth up.

### **1.3. The affecting factors**

According to Parasuraman in his gap model (Parasuraman, 1985), there are 5 dimensions of service quality which are affecting the performance of service. They are the standards for the service quality evaluation. According to these, there are 5 gaps between the service operated by the provider and the quality the customer expected. Moreover, these dimensions affect the service quality during the logistics process performance settled. The service will be increased by raising these five dimensions' quality or shortening the gap of them. And these five dimensions are also affecting the customer satisfaction of the organization operation, in other words, the following 5 dimensions could be considered as 5 affecting factors of the service performance quality.

- Tangible
- Responsiveness
- Reliability
- Assurance
- Empathy

## **2. Literature review and methodology**

### **2.1. The service quality**

Service quality which means the quality on the service operating during the operation of an organization. And it is also an important factor in sustaining relationships with clients in the port company performance. And the service quality could be considered as one of the key evaluation of the organization performance.

Moreover, as to measure a service quality would be very difficult while there are some unique characteristics of it, which are (Bateson 1995):

- Intangibility
- Heterogeneity
- Inseparability
- Perishability

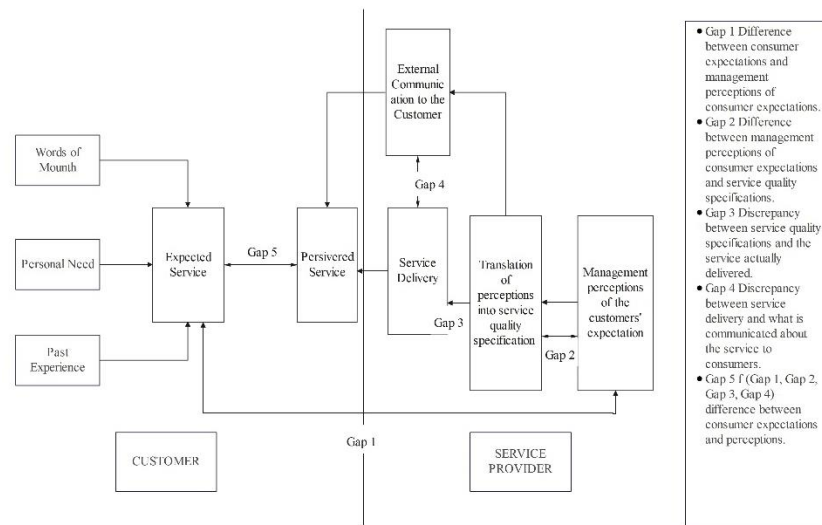
With this precondition, the service would be considered as a result with the value-adding behavior from an organization. And this quality would have the effective on the logistics operation. On the other hand, the Service Quality (SERVQUAL) model is one of the most widely used methods for estimating customer satisfaction and service quality (Al-Momani, 2015). That means the service quality would be one of the keys affecting the logistics performance process. Moreover, as Parasuraman raised in 1985, service quality is associated to the perceptions from the organization staff and the expectation of the service receivers (Parasuraman et al., 1985). In other words, when the result from perceptions is over the actual expectation from the customers, it would make the customers satisfied in the service, and this service could be considered as an excellent service the organization offered (Vázquez et al., 2001). Then the service quality could be divided into 5 dimensions which can be measured for evaluating the quality of it. And the 5 dimensions could be concluded as follow (Parasuraman et al., 1988):

- Tangible
- Responsiveness
- Reliability
- Assurance
- Empathy

The SERVQUAL model proposed multiple factors for customer satisfaction research. The five factors include (1) tangibility, (2) reliability, (3) responsiveness, (4) assurance, and (5) empathy (Pakurár et al., 2019). This model was used and applied in different service quality research, such as Min Li et al. (2015), which applied the SERVQUAL model to the service quality of nine Chinese cities. They found that all factors affected patient satisfaction. Kilibarda et al. (2020) used the SERVQUAL model to find the gap in logistics service quality between customer requirements and logistics service quality.

## **2.2. SERVQUAL model**

To evaluate the quality of a service, the SERVQUAL model will be used in measuring. Conceptually, service quality is defined as global judgement or attitude relating to the overall excellence or superiority of the service (Parasuraman et al., 1988). Babakus and Boller (1992) have found that the score of perception and expectation could be more significant on measuring the service quality than other measurement in the service evaluation. And these five dimensions are related to the performance. To consider the performance of Beibu Gulf, SERVQUAL model should be one of the most useful tools to measure the GAP between the expectation and the perception from the staff (Lupo, 2013). And we also can see the **Figure 1** of SERVQUAL Gap Model (Parasuraman et al., 1988) as following:



**Figure 1.** SERVQUAL GAP model (Modified from Parasuraman et al., 1985).

As shown in **Figure 1**, the gap between every stage of service would be considered as a measuring criterion of the service quality and then the factors which are affecting these quality factors would be considered as the 5 dimensions that raised above: tangible, responsiveness, reliable, assurance and the empathy. The meaning of these dimensions is as following:

**Table 1.** Five dimensions' definition.

Dimension	Definition
Tangible	Appearance of physical facilities, equipment, personnel, and materials
Responsiveness	Willingness to help customers and provide prompt service
Reliable	Ability to perform the promised service dependable and accurately
Assurance	Employees' knowledge and courtesy and their ability to inspire trust and confidence
Empathy	Caring, easy access, good/communication, customer understanding and individualized attention given to customers

Source: Parasuraman et al., 1988.

With **Table 1** above, we can put these five dimensions as the service quality evaluation factor which are considered as the measuring level of the service quality. And according to the SERVQUAL GAP model, we can put the gap into these five dimensions to know whether an organization's service quality is satisfied to the customers or not. logistics performance would be considered as one of evaluation output of the service quality. And then the factors raised above would be effected on the logistics performance by raising service quality. Even there are some scholars considered it is not good for evaluating the service quality of port performance (Hsu, 2013). But according to the dimensions divided, this model could be one of the best research methods for researching service quality.

### 2.3. The relationship among the factors

The relationship among the factors could be using the SERVQUAL model to detective the number of the quality level. This model is the possible to measure the

complex problems by giving the statement of the digital appearance by the co-relationship, and the appearance range would be between  $-1$  and  $1$ . (Rodríguez et al., 2016). The aim of this paper is to find out the co-relations of the service quality and the effect on the RCEP based on the SERVQUAL model. Zameer et al. (2015) made a study to analyze this relationship in Pakistan. With the help of the survey methodology, it is concluded that there is a positive relationship between these variables. Choudhury (2014) underlined the same conclusion by considering regression analysis. With the conclusion, it could be said that the relationship among the factors could be affected by each other, and the RCEP would be another factor on this model.

#### **2.4. The gap of SERVQUAL model**

The gap in this model is about the understanding of the service perceiving and the customer expectation, which can be used to figure out the service quality. The SERVQUAL instrument is based on the 5 Gaps (Parasuraman et al., 1988). These gaps on the service provider's side, which can impede delivery of services that consumers perceive to be of high quality, are:

- Gap 1—difference between consumer expectations and management perceptions of consumer expectations.
- Gap 2—difference between management perceptions of consumer expectations and service quality specifications.
- Gap 3—discrepancy between service quality specifications and the service actually delivered.
- Gap 4—discrepancy between service delivery and what is communicated about the service to consumers.
- Gap 5 (service quality)  $\text{Gap 5} = f(\text{Gap 1, Gap 2, Gap 3, Gap 4})$ —difference between consumer expectations and perceptions.

In other words, the staff of an organization understand the service settled by the managerial level of an organization would be affecting the service quality to the customers. With the gap is close, the customer expected service would be similar as the provider offer.

#### **2.5. The methodology of research**

To research the factors which are related to the logistics performance, this research will use the questionnaires to collect the data as the evidence to show the significance of the factors and then show the affecting effect on the service operation of the port, and choosing Beibu Gulf as the research case.

To analyze the service quality of companies offering cargo services in Turkey, the SERVQUAL was modified with the Kano model and quality function deployment to propose a new solution. Moreover, Gajewska and Grigoroudis (2015) determined the importance, or the weight, of logistics services attributes by surveying customers in the road refrigerated transport sector. The rank reciprocal method was used to convert ordinal data into weights. Silva et al. (2014) analyzed and compared customer satisfaction levels of service quality of a medium-sized beverage distributor in Brazil, classifying 492 customers into many segments and retail categories.

Service quality attributes were identified and put into nine categories: contact

personnel's quality, order's attended quantities, information's quality, order procedures, the accuracy of the order, orders' condition, order's quality, manner of treating problems and complaints, and punctuality.

Next, the obtained instrument was implemented for a case study of Beibu Gulf to demonstrate the assessment and analysis processes. As mentioned previously, the case study is about discovering the relationship between service quality and Beibu Gulf's performance. With the precondition, the questionnaire was prepared based on the SERVQUAL model and according to tangible, reliable, responsiveness, assurance, and empathy dimensions. Some adjustments were made to better fit.

## **2.6. The hypothesis of this research**

H1: The tangible has positive affecting the assurance.

H2: The responsiveness has positive affecting the assurance.

H3: The reliable has positive affecting the assurance.

H4: The empathy has positive affecting the assurance.

H5: The assurance has positive affecting the effect of RCEP.

## **2.7. The data collecting and choosing**

The three main ports of Beibu Gulf operating of their own sites and delivering the customers, which are under the same company's structure of Beibu Gulf Port Group (short as Group as following). The questionnaire was sent to 1,560 customers randomly by online.

The 20 questions are divided into 6 categories corresponding to the 6 dimensions for measuring the quality of services according to the SERVQUAL method as follows:

- Items 1.1–1.3 refer to Tangible (show as T1-T3 in following);
- Items 2.1–2.3 refer to Responsiveness (show as R1-R3 in following);
- Items 3.1–3.3 refer to Reliable (show as L1-L3 in following);
- Items 4.1–4.4 refer to Assurance (show as A1-A4 in following);
- Items 5.1–5.4 refer to Empathy (show as E1-E4 in following).
- Items 6.1–6.3 refer to Effect of RCEP (show as C1-C3 in following)

Each question in the questionnaire is designed based on Ghimire et al. (2022). To answer the questions, a five-point Likert scale (1–5) was used. The respondents specify their level of satisfaction to each statement choosing one of the following options: (1) unsatisfied; (2) not very satisfy; (3) medium; (4) satisfy; (5) very satisfy. The five-point scale was chosen against a scale with more points to facilitate the choice of the answer by the participants.

## **3. Result and discussion**

### **3.1. Result of the questionnaire**

After collecting the questionnaires from the customers of the Beibu Gulf's customers, we have a result as following **Table 2**:

**Table 2.** The numbers of questionnaires collecting.

		Number of respondents	Total
Gender			1560
	Male	907	
	Female	653	
Age			1560
	Under 18	33	
	18–25	212	
	26–30	321	
	31–40	440	
	41–50	297	
	51–60	161	
	Over 60	96	
Area			1560
Guangxi	Nanning	386	996
	Fangcheng	375	
	Qinzhou	127	
	Beihai	107	
Guangdong	Foshan	49	518
	Meizhou	30	
	Jiangmen	23	
	Shantou	27	
	Shenzhen	57	
	Dongguan	42	
	Zhaoqing	12	
	Guangzhou	81	
	Yunfu	8	
	Maoming	23	
	Zhanjiang	24	
	Jieyang	22	
	Shanwei	9	
	Heyuan	6	
	Shaoguan	2	
	Qingyuan	9	
	Yangjiang	11	
	Maoming	23	
	Zhanjiang	24	
	Chaozhou	26	
	Zhuhai	10	
Foreign Countries			58
	Cambodia	7	
	Australia	18	
	Vietnam	6	
	Thailand	11	

In the **Table 2**, there are 1560 questionnaires are collected. it shows the gender of the participate, there are 907 male participates while 653 female participates. There is the age of the participate, 33 of them are under 18 years old, 212 of them are in the range of 18–25 years old, 321 persons are in the range of 26–30 years old, 440 persons are in the age between 31–40 years old, 297 of them are in the age of 41–50 years old, 161 of them are in the age from 51–60 years old, and 96 are over 60 years old. Among them there are 996 from Guangxi, 518 from Guangdong, and also 58 from foreign countries, which are the common customers of Beibu Gulf Transport Group.

**3.1.1. The tangible result**

The Tangible states of this Research. According to the **Table 3**, it shows there are 151 participates consider question T1 is unsatisfied, 170 participates consider it is not very satisfied, 271 participates consider it is medium, 493 participates considered it is satisfied, and 475 participates considered it is very satisfied. And the question T2 there are 169 participates considered it is unsatisfied, 146 participates considered it is not very satisfied, 279 participates considered it is medium, 480 considered it is satisfied, and 486 participates considered it is very satisfied.

To the question T3, there are 149 participates considered it is unsatisfied, 155 participates considered it is not very satisfied, 305 participants considered it is medium, 476 participates considered it is satisfied, and 475 participates considered it is very satisfied. To the question.

**Table 3.** The results of the questionnaire.

Factor	Question	Unsatisfied	Not very satisfied	Medium	Satisfied	Very Satisfied
Tangible						
T1	The Group has enough modern facilities and equipment to ensure customers’ service.	151 (9.6%)	170 (10.8%)	271 (17.3%)	493 (31.6%)	475 (30.4%)
T2	The driver’s uniform is neat and clean.	169 (10.8%)	146 (9.6%)	279 (17.8%)	480 (30.7%)	486 (31.1%)
T3	The Group has appropriate and effective equipment for protecting goods and avoiding damage during transport.	149 (9.5%)	155 (9.9%)	305 (19.9%)	476 (30.5%)	475 (30.4%)
Responsiveness						
R1	The staff is willing to help customers out every time they are asked.	173 (11%)	140 (8.9%)	277 (17.7%)	475 (30.4%)	495 (31.7%)
R2	The staff provides instant transportation service after receiving an order, following the commitment.	159 (10.1%)	154 (9.8%)	292 (18.7%)	481 (30.8%)	474 (30.3%)
R3	The staff can quickly respond to any unexpected or urgent orders.	160 (10.2%)	156 (10.0%)	271 (17.3%)	482 (30.8%)	491 (31.4%)
Reliable						
L1	The Group’s staff always provides services on-time and in the expected manner.	181 (11.6%)	163 (10.4%)	291 (18.6%)	469 (30.0%)	456 (29.2%)



**Table 3. (Continued).**

Factor	Question	Unsatisfied	Not very satisfied	Medium	Satisfied	Very Satisfied
L2	The Group's staff delivers goods accompanied by an invoice.	145 (9.2%)	176 (11.2%)	292 (18.7%)	504 (32.3%)	443 (28.3%)
L3	The Group's staff accurately issues an invoice (delivery order), a receipt, and a purchase order document.	149 (9.5%)	139 (8.9%)	283 (18.1%)	483 (30.9%)	506 (32.4%)
Assurance						
A1	The Group's staff makes customers feel secure and confident when using the service.	98 (6.2%)	105 (6.7%)	248 (15.8%)	569 (36.4%)	540 (34.6%)
A2	The staff and drivers have proper manners when providing services and communicating with customers.	108 (6.9%)	98 (6.2%)	256 (16.4%)	544 (34.8%)	554 (35.5%)
A3	The Group has a convenient and concise process for returning goods.	116 (7.4%)	103 (6.6%)	226 (14.4%)	558 (35.7%)	557 (35.7%)
A4	The Group's staff and drivers are competent and have expertise in their duties. They can always answer the customer's queries.	104 (6.6%)	102 (6.5%)	260 (16.6%)	555 (35.5%)	539 (34.5%)
Empathy						
E1	The Group's staff consistently gives personal attention and remembers personal details.	139 (8.9%)	150 (9.6%)	295 (18.9%)	506 (32.4%)	470 (30.1%)
E2	The Group always launches activities to promote its long-term relationships with customers.	134 (8.5%)	158 (10.1%)	280 (17.9%)	482 (30.8%)	506 (32.4%)
E3	The staff understands the customer's specific needs and difficulties.	165 (10.5%)	128 (8.2%)	300 (19.2%)	512 (32.8%)	455 (29.1%)
E4	The Group has a flexible opening time for customers.	145 (9.2%)	148 (9.4%)	293 (18.7%)	518 (33.2%)	456 (29.2%)
Effect of RCEP						
C1	The deliver destinations to RCEP countries increased.	93 (5.9%)	114 (7.3%)	271 (17.3%)	594 (38.0%)	488 (31.2%)
C2	The working flow of simplified while transporting to the RCEP region	116 (7.4%)	97 (6.2%)	246 (15.7%)	533 (34.1%)	568 (36.4%)
C3	Start to train in RCEP region implementation	102 (6.5%)	98 (6.2%)	278 (17.8%)	561 (35.9%)	521 (33.3%)

### 3.1.2. The responsiveness result

According to the **Table 3**, it shows there are 173 participates consider question R1 is unsatisfied, 140 participates consider it is not very satisfied, 277 participants consider it is medium, 475 participates considered it is satisfied, and 495 participates considered it is very satisfied.

And the question R2 there are 159 participants considered it is unsatisfied, 154 participants considered it is not very satisfied, 292 participants considered it is medium, 481 considered it is satisfied, and 474 participants considered it is very satisfied.

To the question R3, there are 160 participants considered it is unsatisfied, 156 participants considered it is not very satisfied, 271 participants considered it is medium, 482 participants considered it is satisfied, and 474 participants considered it is very satisfied.

### **3.1.3. The reliable results**

According to the **Table 3**, it shows there are 181 participants consider question L1 is unsatisfied, 163 participants consider it is not very satisfied, 291 participants consider it is medium, 469 participants considered it is satisfied, and 456 participants considered it is very satisfied.

And the question L2 there are 145 participants considered it is unsatisfied, 176 participants considered it is not very satisfied, 292 participants considered it is medium, 504 considered it is satisfied, and 443 participants considered it is very satisfied.

To the question L3, there are 149 participants considered it is unsatisfied, 139 participants considered it is not very satisfied, 283 participants considered it is medium, 483 participants considered it is satisfied, and 506 participants considered it is very satisfied.

### **3.1.4. The assurance results**

According to the **Table 3**, it shows there are 98 participants consider question A1 is unsatisfied, 105 participants consider it is not very satisfied, 248 participants consider it is medium, 569 participants considered it is satisfied, and 540 participants considered it is very satisfied.

And the question A2 there are 108 participants considered it is unsatisfied, 98 participants considered it is not very satisfied, 256 participants considered it is medium, 544 considered it is satisfied, and 554 participants considered it is very satisfied.

To the question A3, there are 116 participants considered it is unsatisfied, 103 participants considered it is not very satisfied, 226 participants considered it is medium, 558 participants considered it is satisfied, and 557 participants considered it is very satisfied.

To the question A4, there are 104 participants considered it is unsatisfied, 102 participants consider it is not very satisfied, 260 participants considered it is medium, 555 participants considered it is satisfied, and 539 participants considered it is very satisfied.

### **3.1.5. The empathy results**

According to the **Table 3**, it shows there are 139 participants consider question E1 is unsatisfied, 150 participants consider it is not very satisfied, 295 participants consider it is medium, 506 participants considered it is satisfied, and 470 participants considered it is very satisfied.

And the question E2 there are 134 participants considered it is unsatisfied, 158 participants considered it is not very satisfied, 280 participants considered it is medium, 482 considered it is satisfied, and 506 participants considered it is very satisfied.

To the question E3, there are 165 participants considered it is unsatisfied, 128

participates considered it is not very satisfied, 300 participates considered it is medium, 512 participates considered it is satisfied, and 455 participates considered it is very satisfied.

To the question E4, there are 145 participates considered it is unsatisfied, 148 participates consider it is not very satisfied, 293 participates considered it is medium, 518 participates considered it is satisfied, and 456 participates considered it is very satisfied.

### 3.1.6. The RCEP affecting results

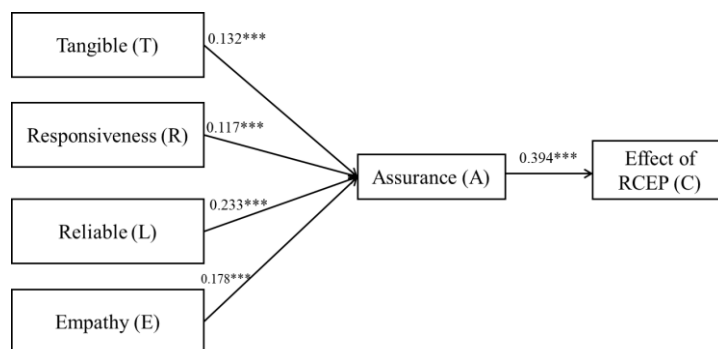
According to the **Table 3**, it shows there are 93 participates consider question C1 is unsatisfied, 115 participates consider it is not very satisfied, 271 participants consider it is medium, 594 participates considered it is satisfied, and 488 participates considered it is very satisfied.

And the question C2 there are 116 participates considered it is unsatisfied, 97 participates considered it is not very satisfied, 246 participates considered it is medium, 533 considered it is satisfied, and 568 participates considered it is very satisfied.

To the question C3, there are 102 participates considered it is unsatisfied, 98 participates considered it is not very satisfied, 278 participants considered it is medium, 561 participates considered it is satisfied, and 521 participates considered it is very satisfied.

### 3.2. Analysis of the questionnaire

To analyze the frequency of buying, this study is concluded to choose the four factors as show in **Figure 2**. for finding the factors which affect to the significance of assurance (1) Tangible (2) Responsiveness, (3) Reliable (4) Empathy. These four factors effect to the factor of assurance and assurance effect to RCEP. The model was created and shown as **Figure 2**. Before analyzing this model by using SEM, the model was tested for its validity of proposed model. The validity of the model can tell the quality of the model. The criteria of the validity of the model can consider with the goodness of fit index. After the model pass which various criteria. Then according to the questionnaire, we put items from all dimensions into the model, for easy handling by program R, we put tangible items from T1-T5, responsiveness items from R1-R5, reliable items from L1-L6, and Empathy items from E1-E4, RCEP items from C1-C3. And the mediator Assurance items from A1-A4. Then we run the model as following **Figure 2**.



**Figure 2.** Service quality dimension to effected RCEP model.

\*\*\*  $p$ -value  $\leq 0.001$ .

### 3.3. SEM results

The goodness of fit indexes of model are shown in **Table 4**. The results show the model pass six criteria. Moreover, the value of Cronbach’s alpha in **Table 5** show that the factors can accept in the model with the higher value than 0.5. The proposed model is composed of the factors of (1) tangible, (2) responsiveness, (3) empathy, (4) reliable, these factors are affected to the factor of assurance, Moreover, assurance also affected to RCEP. After the model pass which various criteria, the proposed model is tested the significant of relationship between all five factors and the significance of assurance. The result is show as **Table 6** and the description of the results are shown as below:

**Table 4.** Goodness of fit model.

Goodness of fit	Criteria	Results		Reference
Goodness of Fit Index (GFI)	$\geq 0.95$	0.966	Pass	Schreiber et al. (2006)
Adjusted Goodness-of-Fit (AGFI)	$\geq 0.95$	0.955	Pass	Schreiber et al. (2006)
Root Mean Square Error of Approximation (RMSEA)	$\leq 0.05$	0.040	Pass	Browne and Cudeck (1993)
Normed Fit Index (NFI)	$\geq 0.95$	0.953	Pass	Schumacker and Lomax (2004); Schreiber et al. (2006)
Incremental Fit Index (IFI)	$\geq 0.90$	0.966	Pass	Bollen (1989)
Tucker-Lewis index (TLI)	$\geq 0.95$	0.959	Pass	Schreiber et al. (2006)

**Table 5.** Cronbach alpha of the factors in the model.

Factors	Loading Factor	Standard Error (S.E.)	Cronbach Alpha
Tangible			0.806
T1	0.769	0.036	
T2	0.757	0.038	
T3	0.761	0.036	
Responsiveness			0.826
R1	0.783	0.036	
R2	0.773	0.035	
R3	0.795	0.035	
Reliable			0.632
L1	0.789	0.057	
L2	0.724	0.048	
L3	0.375	0.053	
Assurance			0.835
A1	0.758	0.027	
A2	0.727	0.029	
A3	0.748	0.029	
A4	0.745	0.028	

**Table 5.** (Continued).

Factors	Loading Factor	Standard Error (S.E.)	Cronbach Alpha
Empathy			0.849
E1	0.780	0.030	
E2	0.750	0.032	
E3	0.765	0.032	
E4	0.763	0.031	
Effect to RCEP			0.781
C1	0.738	0.032	
C2	0.762	0.036	
C3	0.713	0.033	

**Table 6.** P-Value of the model.

Hypothesis	Factors	P-value	Result
H1	Tangible → Assurance	0.000	Supported
H2	Responsiveness → Assurance	0.000	Supported
H3	Reliable → Assurance	0.000	Supported
H4	Empathy → Assurance	0.000	Supported
H5	Assurance → RCEP	0.000	Supported

**Tangible Value:** The tangible value is composed with the organic label and non-contamination label. From the result of SEM, the factor of tangible value shows the positive relationship with assurance. It means if the tangible value is not so significant to the assurance. For this result, the factor of tangible has significant effect ( $P$ -value > 0.06), which means less affecting ability to the assurance.

**Responsiveness value:** The responsiveness value is composed with expected the willingness to help and respond to customer need. From the result of SEM, the responsiveness value shows the 0.001 relationship with assurance. It means if the would be a good effect factor on assurance. Moreover, the factor of responsiveness value has significant effect ( $P$ -value = 0.01) on the assurance.

**Reliable:** The reliable is composed with ability to perform service dependably and accurately. From the result of SEM, the quality shows the negative relationship with assurance. It means if the reliable of the service quality measurement has less co-relationship effect on assurance. However, the factor of quality is not significant effect on the assurance.

**Empathy:** The empathy is composed with the extent to which caring individualized service is given. From the result of SEM, the empathy factor shows the positive relationship with assurance. The significant effect ( $P$ -value = 0.000). this means this factor would be one of the most significant factor of assurance.

**RCEP:** The factor's significant effect ( $P$ -value = 0.000), too. That means it is also the most significant factor to assurance, moreover, it fit the hypothesis of this research that RCEP implementation will affect the service quality then has effect on logistics operation.

## **4. Conclusion**

### **4.1. Conclusion**

From the analysis above, the SERVQUAL model of service quality factors are applied to find the relationship of Beibu Gulf's performance. The proposed model shows that the four factors of tangible, responsiveness, reliability, and empathy strongly positively affect ( $p$ -value = 0.000) assurance. Moreover, assurance also positively affect ( $p$ -value = 0.000) RCEP. From the analysis above, the service quality factors are applied to find the relationship between Beibu Gulf's performance. These results can explain if increase the service quality of the logistics performance by increasing the factors' investment to increase the service quality level to have a better performance to have a better benefit for the further development and the economic development.

In summary, the four dimensions are all the factors those are affecting the assurance. And then there is an implementation from this SEM could be said as to enter the RCEP is a very good choose for developing the logistics performance for Beibu Gulf because the  $P$ -value shows a very significant result of it.

### **4.2. Discussion**

For an organization which is offering the service, the service quality will be a factor improve its benefit with a very reasonable cost, and the correct method on how to improve the quality still be one key method to the organization. Furthermore, through this research paper, from the customer side, they show the expectation on the service, from the basic five dimensions to offer a thinking pattern for the organization to increase the service quality level. Furthermore, with the RCEP agreement signed, the free trade scale of the world is increasing in many regions. The logistics service behavior from Beibu Gulf Port Group would focus on the five dimensions to keep the service quality still be like the customer expectation.

### **4.3. Implication**

In summary, the five dimensions are all the factors those are affecting the service quality. And then there is an implementation from this SEM could be said as to enter the RCEP is a very good choose for developing the logistics performance for Beibu Gulf because the  $P$ -value shows a very significant result of it. And increase the service quality of the logistics performance by increasing the factors' investment to increase the service quality level to have a better performance to have a better benefit for the further development and the economic development.

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#### 4.4. Limitation

This research is based on the data collected from the customers who experienced Beibu Gulf Ports Group. Which means that the cargo amount of the customers did not divide and the results from this SEM could be considered not as critical as the data divided by the cargo amount and other criteria. But it applies the theoretical support of the measuring of the service quality of the customer expectation and the organization's service quality's perceiving. To make a measurement on the fuzzy feeling of the service quality. The future research will carry on by the critical cargo amount divided and the customers' service variety.

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