

# Evaluating customer satisfaction and service quality using servqual model in the Courier Service Delivery (CSD) provider (Pilot study: Surabaya city, Indonesia)

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**Abstract.** In the last decade, the number of *Courier Service Delivery (CSD)* Providers has been increasing and growing rapidly, it certainly makes the characteristics of each providers more diverse as well. The Government who serve as assessors who are follow-up of monitoring and evaluation results, often find many problems in the selection of variables used as aspects of assessment. One important aspect in figuring out valuation is the value of customer satisfaction. This study aims to measure and evaluate the *Customer Satisfaction Index (CSI)* modification with the use of service qualities dimension or known as SERVQUAL model. Not only that, this paper also examines the influence of five dimensions on the model to the customer satisfaction using *Ordinary Least Square (OLS)* regression method. The dimensions are *Tangible, Reliability, Responsiveness, Assurance, and Empathy*. This research was conducted on a total of 249 respondents in 6 sample providers. According to the results obtained that *CSI* scores in the range of 80.27 to 84.76 (*good and very good*) and the dimensions of service quality that significantly affect on customer satisfaction were *Tangible* and *Responsiveness*.

## 1. Introduction

Business of courier service delivery (*CSD*) is a service business sector that is growing rapidly. The trend of online store or also called e-commerce is one of the factors driving the growth and development of business opportunities this service. This happens, caused also due to the impact of the development of information technology which allows each individual or organization can still communicate or transact without having to meet each other. Even individuals and organizations can certainly use this delivery service. The growth of e-commerce in line with increasingly of business opportunities in the parcel delivery, courier, and logistics (1). The most important aspect of providing of e-commerce customer needs is fast and prompt delivery and quality of service. In Indonesia, Logistic service in 2015 growth penetrated US \$ 247,74 M or about 2,100 trillion rupiah or worth APBN 2015 (2). In East Java Province, the *CSD* Provider in the second Quarter of 2015 grew by 5.93% from the previous quarter and grew by 20.19% in a

year (3). *CSD* provider is a part of logistic companies or also called Third-Party Logistic (*3PL*) provider (4). *3PL* has characteristics which is a company that sends goods directly to the customer or end user, so that the strategy of improving the quality of service and customer satisfaction, becomes a heavy duty and responsibility in the service business sector (5). Several previous studies in Asia describe that the importance of service quality and customer satisfaction aspects towards *3PL* / *CSD* providers, including in Malaysia (4,6), Saudi Arabia (7), India (8) and Thailand (9). Related research is also commonly done in other service sectors, such as retail (10), banking (11), industry or company (12,13), as well as transportation (7,14,15). This study aims to formulate the assessment of service delivery companies using regression model between services of quality to customer satisfaction.

### 1.1. Literature Review

#### 1.1.1. Service Quality

The quality of service is based on the level of excellence to meet customer desires or satisfaction. The Service Company is required to improve the service as per customer or customer demand. One method of measuring service quality is the *SERVQUAL* or Service Quality method (16). It is a multi item scale used to measure consumer or customer perceptions of the quality of service provided (16). Initially *SERVQUAL* was developed with 10 dimensions of service quality, namely: *access, communication, competence, courtesy, credibility, reliability, responsiveness, security, tangibles, understanding or knowing the customer* (17). So in the next research *SERVQUAL* simplified into five dimensions consisting of *Tangible, Reliability, Responsiveness, Assurance, Emphaty* with 22 attributes. The dimensions of *assurance* and *emphaty* are representations of the preceding seven dimensions (16). Some studies even modify and use several different dimensions and attributes. This is due to differences in the size or priority scale that will be measured on each service provider. In other words each sector of the service provider has its own characteristics (18). For example, in research on airline companies, tend to ignore the *emphaty* dimension and replace it with *security or safety and communication* (14), in the industry sector, outlining the five dimensions of service quality are added *network quality* dimensions (12). This study uses the standard 5 Dimensions by simplifying 22 attributes to 17 attributes.

*SERVQUAL* value ( $Q$ ) is the difference between consumer perception and consumer expectation [16]. Formulated as follows:

$$Q = P - E \quad (1)$$

Which  $Q$  is a service quality value,  $P$  is a customer perception score and  $E$  is a customer expectation score.

#### 1.1.2. Customer Satisfaction

Customer Satisfaction can be defined as a customer benchmark in assessing the service received as expected (19). In other words, the customer's needs and expectations have been able to be realized by the service provider (20). In this study, the measurement of customer satisfaction is based on the calculation of customer satisfaction index, using the same attribute on the *SERVQUAL* dimension, the reason for using this calculation is the *CSI* is a single score which can select some attributes appropriately so that included in the category of good measurement in measuring customer satisfaction (21). *CSI* scores are based on weighted satisfaction calculations, formulated as follows:

$$CSI = \frac{\sum_{i=1}^n WS_i}{HS} \times 100\% \quad (2)$$

Which  $WS_i$  is a weighted score then  $HS$  is a heighted scale.

### 1.2. Research hypothesis

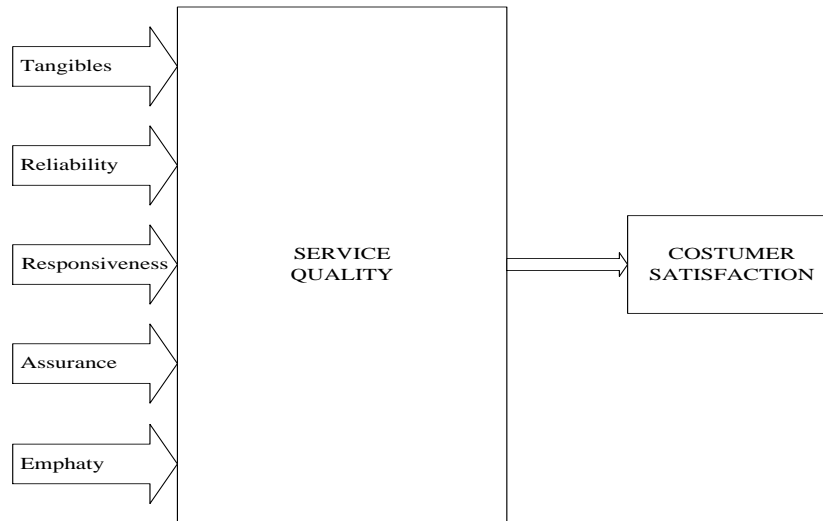
The initial hypothesis of this research that each dimension of service quality has significantly affect on customer satisfaction. For the hypothesis test using *analysis of varian (ANOVA)* method.

The following hypotheses are proposed:

- H<sub>1</sub>: CSD Providers tangibility has significant effect on customer satisfaction.
- H<sub>2</sub>: CSD Providers reliability has significant effect on customer satisfaction.
- H<sub>3</sub>: CSD Providers responsiveness has significant effect on customer satisfaction.
- H<sub>4</sub>: CSD Providers assurance has significant effect on customer satisfaction.
- H<sub>5</sub>: CSD Providers emphaty has significant effect on customer satisfaction.

## 2. Methodology

This chapter describes the research procedure, the variables used in the study, as well as data analysis techniques. Fig. 1 explains the research framework on the relationship of five dimensions of service quality to customer satisfaction.



**Figure 1.** Research Framework

### 2.1. Procedure

The research data was collected in October 2016 through a questionnaire of 249 respondents on 6 sample CSD providers which representation of small, medium, and large service businesses, each of 2 providers. The details of respondent characteristics in this study are shown in Table. 1, the following:

**Table 1.** Respondent Characteristic

		<b>n</b>	<b>%</b>
<b>CSD Provider</b>	A	27	11%
	B	34	14%
	C	55	22%
	D	54	22%
	E	52	21%
	F	27	11%

		n	%
<b>Age</b>	<b>total</b>	<b>249</b>	<b>100%</b>
	17-30	83	33%
	31-40	84	34%
	41-50	61	24%
	>50	19	8%
	not defined	2	1%
<b>period</b>	<b>total</b>	<b>249</b>	<b>100%</b>
	<1 years	4	2%
	1-3 years	84	34%
	3-5 years	69	28%
	5-10 years	66	27%
	>10 years	23	9%
	not defined	3	1%
	<b>total</b>	<b>249</b>	<b>100%</b>

## 2.2. Measurement of variable

The variables used in regression analysis are divided into the dependent variable is Customer Satisfaction (Y), and the independent variable is the service quality consisting of X1 = Tangible, X2 = Reliability, X3 = Responsiveness, X4 = Assurance (Warranty), X5 = Empathy. Measuring of the quality of service used the likert scale 5 (1 = very poor, 2 = poor, 3 = moderate, 4 = strong, 5 = very strong). With 17 items or attributes. While the calculation of customer satisfaction index used scale as shown in Table. 2, the following:

**Table 2.** CSI Interpretation

Index	Interpretation
$CSI \leq 64$	Very poor
$64 < CSI \leq 71$	Poor
$71 < CSI \leq 77$	Cause for concern
$77 < CSI \leq 80$	Borderline
$80 < CSI \leq 84$	Good
$84 < CSI \leq 87$	Very Good
$87 < CSI$	Excellent

Source: Adapted from (22)

## 2.3. Data Analysis

Data Analysis Techniques using software aid with the aim to determine the regression model as well as to test the validity and reliability of the questionnaire.

## 3. Result and Discussion

### 3.1. Reliability and Validity Test

Test is intended to test the questionnaire distributed to 249 customers has been reliable and valid so workable for the next analysis. The test results are shown in Table. 3 and 4 below:

**Table 3.** Result of validity test

item	r count	r table	result
1	0.269	0.124351	valid

item	r count	r table	result
2	0.482	0.124351	valid
3	0.483	0.124351	valid
4	0.440	0.124351	valid
5	0.389	0.124351	valid
6	0.568	0.124351	valid
7	0.374	0.124351	valid
8	0.464	0.124351	valid
9	0.630	0.124351	valid
10	0.523	0.124351	valid
11	0.475	0.124351	valid
12	0.508	0.124351	valid
13	0.396	0.124351	valid
14	0.417	0.124351	valid
15	0.420	0.124351	valid
16	0.485	0.124351	valid
17	0.413	0.124351	valid

The value of *r* count for all question items is greater than the *r* table value so that the whole question is valid.

**Table 4.** Result of reliability test

Cronbach's Alpha	N of Items
.755	17

Cronbach's Alpha value is greater than *r* table value, is  $0.755 > 0.123853$ , then the instrument is reliable.

### 3.2. SERVQUAL and CSI

The result of calculating *SERVQUAL* (Q) and *Customer Satisfaction Index* (CSI) is shown in Table. 5 below:

**Table 5.** *SERVQUAL* and *CSI* score

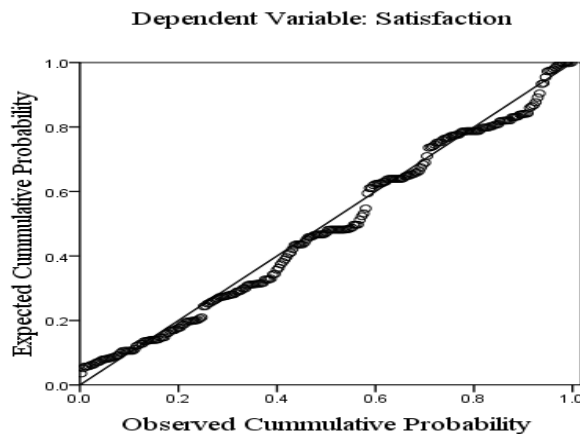
Dimension	Item	SERVQUAL (Q)					
		A	B	C	D	E	F
Tangibles	1	0.19	-0.16	-0.02	0.04	0.07	-0.18
	2	-0.17	0.01	-0.08	0.02	0.07	0.16
	3	-0.04	0.05	0.12	0.26	-0.23	-0.37
	4	-0.33	0.45	-0.05	-0.07	0.09	-0.14
	5	0.22	-0.16	-0.49	0.49	0.11	-0.19
	6	0.00	0.16	0.06	0.14	-0.17	-0.26
	7	0.35	0.02	-0.23	0.07	-0.08	0.09
Reliability	8	0.08	0.01	-0.07	0.01	-0.04	0.12
	9	-0.01	0.32	-0.75	0.73	0.13	-0.57
	10	-0.42	0.31	0.17	0.11	-0.02	-0.54

Dimension	Item	SERVQUAL (Q)					
		A	B	C	D	E	F
Responsiveness	11	-0.20	0.28	-0.12	0.01	-0.01	0.10
	12	-0.28	0.14	-0.05	-0.01	0.10	0.01
	13	-0.09	0.05	0.00	0.01	0.03	-0.01
Assurance	14	0.81	-0.17	0.07	0.01	-0.37	-0.08
	15	-0.19	-0.32	0.11	0.17	0.12	-0.15
Emphaty	16	-0.31	0.07	0.09	-0.01	0.06	-0.01
	17	-0.61	0.18	0.00	0.11	0.09	0.02
Weighted Score		<b>4.06</b>	<b>4.20</b>	<b>4.05</b>	<b>4.24</b>	<b>4.12</b>	<b>4.01</b>
CSI		<b>81.27</b>	<b>83.95</b>	<b>81.18</b>	<b>84.76</b>	<b>82.40</b>	<b>80.27</b>

Based on Table. 5, in each item or attribute hasn't gotten the *SERVQUAL* score (Q) positive (+) absolutely. This shows that each item of service quality can't be concluded is good or not. However, by calculating the weighted score and then determining the CSI obtained satisfactory results, i.e. 4 *CSD* Provider of "good" and 1 "very good" provider (based on Table. 2)

### 3.3. Regression Analysis

The next step is regression analysis to know the factors on service quality dimension simultaneously on all sample of providers, which have significant affect to customer satisfaction. Regression method used is *ordinary least square (OLS)*. Before doing the regression modeling, it is necessary to test the linearity to the regression model that is formed as shown in Figure 2.



**Figure 2.** Result of linearity and normality test

It shows that the plot spreads and follows perpendicular lines so it can be concluded that the regression model is linear and normally distributed.

**Table 6.** Result of Regression Analysis

	Sum of Squares	df	Mean Square	F	Sig.	
Regression	15.132	2	7.566	257.198	.000*	
Residual	.088	3	.029			
Total	15.220	5				
Dimension	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
Tangible	.562		.897		20.130	.000*
Responsiveness	.197		.311		6.970	.006*
Assurance	-		.411		2.122	.168
Reliability	-		-.249		-1.708	.230
Emphaty	-		.099		1.242	.340
R Square .994 ; Adjusted R Square 0.99; Constant = 6.664						

*df* (degrees of freedom) is the number of values in the final calculation of a statistic that are free to vary. *F-value* or *F-statistic* is the value shown from the test results the influence of independent variables as a whole, while *t-value* is the influence of partial independent variables. *Sig. value* indicates that the significance or probability value the regression model obtained, in other terms is also called P-value. Coefficient of determination (R Square) of 0.994, so that all variables in each dimension able to give the influence proportion of 99.4% and the rest of 0.6% influenced by other factors outside the regression model. The regression equation formed is:

$$\text{Costumer Satisfaction} = 6,664 + 0,562 \text{ Tangibles} + 0,197 \text{ Responsiveness} \quad (3)$$

Based on the regression model that has been formed so that it can be tested against the hypothesis shown in Table. 7:

**Table 7.** Results of hypothesis test

Hypothesis	Dimension	Result
H <sub>1</sub>	Tangibles	Supported
H <sub>2</sub>	Reliability	Not Supported
H <sub>3</sub>	Responsiveness	Supported
H <sub>4</sub>	Assurance	Not Supported
H <sub>5</sub>	Emphaty	Not Supported

*Tangible* occupies the highest position or most significant affect on customer satisfaction, indicated from several components in this dimension can be observed visually by customers such as company location, adequate infrastructure, and good employee performance. This is in line with the earlier studies [8].

Skills, speed, and accuracy of employees in giving responses and services to customers become the second influential aspect incorporated in the dimensions of *Responsiveness*. This dimension can provide a positive influence in the level of customer satisfaction and even able to as an indicator of market share (23).

*Assurance*, *Reliability*, and *Empathy* show results that have no significant affect, in contrast to previous studies. In the previous, *assurance* assures that the goods are guaranteed to be secure to the destination (8), *Reliability* is identified as the ability of the company to deliver quickly and accurately from the promised time (19), while *Empathy* is not a crucial factor as some customers tend to transact and interact with employees in a brief time.

The difference results in this study are most likely to occur because of differences in market share, business competition, and customer characteristics in each country (9).

#### **4. Conclusion**

The conclusion in the research has been able to explain that measurement of customer satisfaction with *CSI* with approach of *SERVQUAL* model able to get good result. Object of research conducted on *CSD* provider, with regression analysis method also found sequence of factors in *SERVQUAL* model that dominant influence customer satisfaction. Differences results in previous studies, alleged differences in consumer characteristics, as well as different areas.

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