

# Logistic Service Quality and Customer Satisfaction to Customer Retention on Rice Producer Industry

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Good quality logistic services from the company can make customers feel satisfied and make purchases back to the company. in the form of rice shops will This study aims to look at the effect of logistic service quality on customer retention through customer satisfaction. This study investigates the service quality of logistic providers that are hired by the rice producers in distributing rice to rice retailers. The samples in this study are 36 rice retailers who have used logistic services at least two times. Data obtained from the questionnaire are processed using partial least square (PLS). The results of this study provide evidences that logistic service quality affects customer retention and customer satisfaction. Further results show that dissatisfied customers will significantly reduce customer retention with a statistical value of 2.754. Intervening results in this study indicate that there is an influence between logistic service quality on customer retention through customer satisfaction..

**Keywords:** Logistic Service Quality, Customer Satisfaction, Customer Retention

## 1. Introduction

The development of the economy and business environment is becoming increasingly competitive so it makes companies want to focus on their main industry which is producing high quality products that can satisfy their customers. However, producing high quality products alone is not enough to compete in the market today, the role of logistics is also very important as a key source of corporate competitive advantage. Although the products are good in quality, something improper happens during the delivery by damaging the products, the customer will be unhappy.

Linking the production and consumption is the key to logistical activities. Then, logistics activities are focused towards financing efficiency, so that logistics not only becomes a linkage between production and consumption, but also a competitive advantage for the company (Novack, Rinehart, & Langley, 1994). This is the main reason why companies must give their logistic handling to third parties or what is commonly called third-party logistics (3PL) so that they can focus on producing good products that can satisfy their customers. The existence of a third party logistics that take care of logistical needs and the high level of government support in the logistics area is also a stepping stone for new companies to get involved in this logistics provider business.

The logistics company or 3PL company is a company that has a very important role in the distribution of goods from a company to other business people (B2B) or from companies to customers (B2C). This logistics service provider is to help companies who want to focus on their main industry and submit their logistics handling to other company without reducing the quality of service or scientific service quality that has been provided by the company. Even many 3PL companies can provide better logistics service quality in handling the products. In addition to good service quality, risks at the time of

delivery can be minimized and the performance of the service user company remains efficient. Logistics service quality is the development variable of service quality with the aim of measuring customer satisfaction. Service quality that runs smoothly will affect increased customer satisfaction, after customer satisfaction increases, it will also affect customer retention where customers will continue to buy products from the company.

Badan Pusat Statistik, or Statistics Indonesia, has recorded the economic growth in Indonesia in the second quarter of 2018 of 5.27%, the figure is even higher than the first quarter of 2018 which is only 5.06% and the second quarter of 2017 which is only 5.01% (Movanita, 2018). The high growth is supported by the growing in the services business of 9.22%, then the company services at 8.89%, and the transportation-warehousing of 8.59% (Statistics Indonesia, 2018). In line with the economic and business conditions in Indonesia in 2018, ASPERINDO (Association of Indonesian Express Delivery Service Companies) predicts that the logistics industry in the future can increase by more than 15% compared to previous years. The impact of the growth in logistics services in Indonesia is also felt in many small cities, such as Madiun. The third party logistic (3PL) companies begin to emerge as a means of transportation for companies to deliver their products to the customers.



**Figure 1.** GDP growth for business in the second quarter of 2018

Source: Statistics Indonesia (2018)

## 2. Literature Review

### 2.1. The relationship between the concepts of Logistics Service Quality and Customer Satisfaction

Logistics service quality is the adoption of the concept of service quality used in the field of logistics. Logistics service quality is a form of evaluation of each level of operations needed to deliver service and simplify the process by creating service product that considers services as the observable physical object and has attributes that can be evaluated, including evaluating the service quality to customers subjectively (Saura et al., 2008). In other words, logistics service quality is a tool to measure customer perception on provided logistics services (Jang et al., 2013) to demonstrate the company's distribution capability in meeting the price of customer service (Liu et al., 2010). The higher the ability of logistics service provider companies to meet the expectations of the customer, the higher the level of satisfaction perceived by the customer. This is in accordance with the results of a research conducted by Volibarda and Andrejic (2016) stating that logistics service quality (LSQ) has a significant relationship with customer-satisfaction. The same thing is stated by Politis et al. (2014) who find a significant influence of the relationship between logistics and service quality and customer critical action. Therefore, the hypothesis is constructed as follows:

H1: Logistics service quality has an influence on customer satisfaction.

### 2.2. The relationship between the concepts of Logistics Service Quality and Customer Retention

Logistics service quality (LSQ) is the optimism of distribution networks in order to increase the time to receive goods and services to customers as customers' efforts to meet the expectations and increase the satisfaction of the auction (Japariato, 2018). Many experts believe that the quality of service has become the initial stage of perception for consumers to assess the ability of companies to develop long-term relationships to consumers or so-called customer retention (Danesh et al., 2012). Customers who have a high retention also have a higher level of satisfaction, so customer with high retention will increase the company profit, because getting new customers will require higher costs of promotional activities than maintaining the customer (Hanaysha, 2018). This is in accordance with the results of a study of Micu et al. (2013) who reveal a significant influence between LSQ and custom retention, where the quality of logistics services is considered a critical factor that drives the success of company and differentiation tools to increase consumer loyalty. A research by Darzi and Bhat (2018) also explains that the high customer perception on service quality provided by logistics service companies becomes an important reason for customers to not turn to other service providers. Therefore, the hypothesis is constructed as:

H2: Logistics service quality has an influence on the customer retention.

### 2.3. The relationship between the concepts of Customer Satisfaction dan Customer Retention

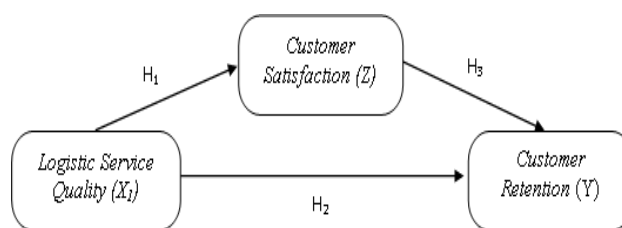
Customer satisfaction can be distinguished into several levels. At the fifth level, customers are very satisfied with the products or services provided, so that customers are very likely to do repeat purchases and even spread good news about the company. At this level, high satisfaction has created emotional bond between the customer and their company (Kotler & Keller, 2012). Therefore, customer satisfaction is the key to the formation of customer intentions that will encourage customers to be happy to make most of their purchases at certain brands and make him feel reluctant to be interested in the promotion of prices offered by competitors (Hanaysha, 2018). Regarding this matter, Ibojo (2015) explains that customer satisfaction is an important factor that must always be considered to achieve the stated organizational goals and also shows that customer satisfaction directly influences customer retention to buy products repeatedly over a long period of time. This is in accordance with the results of a research conducted by Darzi and Bhat (2018) who find a significant influence between customer satisfaction and customer retention. Therefore, the hypothesis is constructed as follows:

H3: Customer satisfaction has an influence on customer retention.

### 2.4. Customer satisfaction as the intervening variable of Logistics Service Quality to Customer Retention

This research aims also to observe the influence of logistics service quality to customer retention using customer satisfaction as the intervening variable. Customer satisfaction has a strong relationship with service quality and repeat purchase. This is supported by Saribanon et al. (2016) revealing that customer satisfaction can become an intervening variable from logistics service quality to repeat purchase. Customer satisfaction can mediate the service quality and repeat purchase, because a good service makes a customer satisfied and a satisfied customer will do the repeat purchase in that company.

### 2.5. Research Framework



**Graph 1. Research Framework**

Source: Darzi dan Bhat (2018)

## 3. Research Method

This research is a quantitative research. According to Hair et al. (2004), a quantitative research is a research with a great emphasis on the use of formal questions and the use of response options specified in a questionnaire or survey that will be given to respondents. Furthermore, Hair et al. (2004) also suggest that usually problems in a quantitative research are well defined. According to Sugiyono (2017), a quantitative study looks at the relationship of variables to the object under study whether they are causal, so that in the research, there are independent and also dependent variables.

In this study, the authors want to test the effect of logistic service quality on customer retention through customer satisfaction using quantitative methods because this study is intended to test the hypotheses that have been set. With the quantitative research method, the process of collecting data and analyzing the data uses numbers and statistics in order to produce tested generalizations and determine the effect of an independent variable, namely logistic service quality, on a dependent variable, namely customer retention, through an intervening variable, namely customer satisfaction. The type of quantitative research used is a quantitative survey in which information is collected by distributing questionnaires to samples.

Population is a combination of all events in the form of events, or people who have the same characteristics and become the center of attention of a researcher (Ferdinand, 2014). The population is not just on the object or subject studied, but also covers all the characteristics or traits that are owned by the subjects studied (Sugiyono, 2017). The population in this study is the customers of the rice-producing companies.

The sample is a part of the number and characteristics possessed by a population (Riduwan, 2015). The sampling technique used is a purposive sampling technique. The total number of customers owned by the company is 45 retail stores registered from January to March 2019. The sample used in this study is 36 stores because they have used the 3PL services provided by rice producing companies at least two times.

The data collection in this study is conducted using a questionnaire method, which are a data collection technique that is carried out by giving a set of written or oral questions to respondents to answer (Malhotra, 2012). The questionnaire method is applied by distributing the questionnaires to 36 customers or rice shops of a rice-producing company. The company's customers are scattered in several cities in East Java, namely in Surabaya, Madiun, Malang, and Jember.

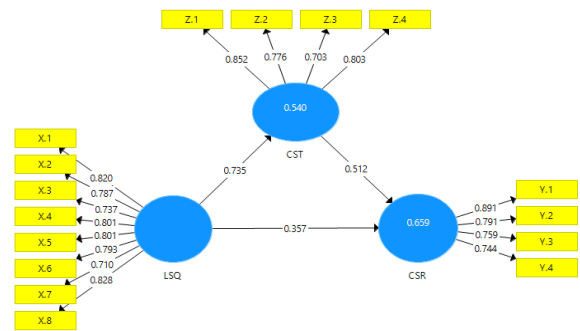
The questionnaire is constructed with a Likert scale to answer the statements on the questionnaire. According to Sugiyono (2017), the Likert scale is used to measure the attitudes, opinions, and perceptions of a person or group of people about the social phenomena studied. Each answer choice is given a score of a value from numbers 1 to 5 with each category: 1 = Strongly Disagree (SD), 2 = Disagree (D), 3 = Neutral (N), 4 = Agree (A), and 5 = Strongly Agree (SA).

The data are analyzed with a software called SmartPLS. According to Widardjono (2015), partial least square (PLS) is an alternative estimation of structural equation models through path analysis. PLS is an excellent analytical tool for use on small sample sizes. The steps taken to analyze data through partial least square (PLS) include:

- Evaluate the outer model
- Evaluate the inner model

#### 4. The Results

The results of the PLS outer model is depicted in Graph 2.



**Graph 2. The value of outer loading, path coefficient, and R-square**

**Table 1. The value of outer loading**

Variable	Indicator	Outer Loading
<i>Logistic Service Quality (X)</i>	X.1	0.820
	X.2	0.787
	X.3	0.737
	X.4	0.801
	X.5	0.801
	X.6	0.793
	X.7	0.710
	X.8	0.828
<i>Customer Satisfaction (Z)</i>	Z.1	0.852
	Z.2	0.776
	Z.3	0.703
	Z.4	0.803
<i>Customer Retention (Y)</i>	Y.1	0.891
	Y.2	0.791
	Y.3	0.759
	Y.4	0.744

It can be observed in Table 1. that all indicators of the logistic service quality, customer retention and customer satisfaction variables have an outer loading value  $> 0.7$ , so it is concluded that the indicators that measure the research variables have fulfilled convergent validity. Furthermore, convergent validity testing is also done by looking at the average variance extracted (AVE) value. A construct (variable) is said to meet convergent validity if it has a value of  $AVE > 0.5$ . Table 2. shows the value of AVE for each variable.

**Tabel 2. The value of AVE**

Variable	AVE
<i>Logistic Service Quality (X)</i>	0.617
<i>Customer Satisfaction (Z)</i>	0.617
<i>Customer Retention (Y)</i>	0.637

It can be seen in Table 2. that the logistic service quality, customer retention and customer satisfaction variables have a value of  $AVE > 0.5$ , so it is concluded that the variables used in this study have met the convergent validity.

**Table 3. The value of cross loading**

Indicator	Variable		
	(X)	(Y)	(Z)
X.1	<b>0.820</b>	0.584	0.660
X.2	<b>0.787</b>	0.582	0.561
X.3	<b>0.737</b>	0.460	0.518

Indicator	(X)	Variable (Y)	(Z)
X.4	<b>0.801</b>	0.707	0.591
X.5	<b>0.801</b>	0.574	0.555
X.6	<b>0.793</b>	0.599	0.597
X.7	<b>0.710</b>	0.402	0.483
X.8	<b>0.828</b>	0.639	0.626
Y.1	0.615	<b>0.891</b>	0.661
Y.2	0.490	<b>0.791</b>	0.572
Y.3	0.625	<b>0.759</b>	0.603
Y.4	0.597	<b>0.744</b>	0.628
Z.1	0.601	0.567	<b>0.852</b>
Z.2	0.563	0.499	<b>0.776</b>
Z.3	0.571	0.701	<b>0.703</b>
Z.4	0.562	0.637	<b>0.803</b>

It can be seen in Table 3, that each indicator on the logistic service quality, customer retention and customer satisfaction variables has the largest cross loading value on the variables it forms compared to other variables. Thus it can be concluded that the indicators used in the study have met the discriminant validity. Another method used to test discriminant validity is to compare the values of the AVE roots of each variable with the correlations between variables. If the value of the AVE roots is greater than the occurring correlations, then the variable has the good discriminant validity. Here are the AVE root values and correlations between variables.

**Table 4.** Fornell–Larcker Criterion

	CSR	CST	LSQ
CSR	<b>0.798</b>		
CST	0.775	<b>0.785</b>	
LSQ	0.734	0.735	<b>0.786</b>

The results of the Fornell-Larcker model above show that the root AVE customer retention construct is 0.798 which is higher than the correlation between the construct of customer satisfaction and logistic service quality. The root value of AVE constructs customer satisfaction is 0.785 which is higher than the correlation between constructs of logistic service quality and customer retention. The value of AVE construct logistic service quality is 0.786 which is higher than the correlation between the construct of customer retention and customer satisfaction. These results indicate that the indicators of each variable have been able to measure the construct of the variable.

**Table 5.** The root of AVE and the correlation among variables

Variable	AVE	Root AVE	(X)	(Y)	(Z)
LSQ (X)	0.617	0.786	1.000		
CR (Y)	0.637	0.798	0.734	1.000	
CS (Z)	0.617	0.785	0.735	0.775	1.000

The smallest root value of AVE is 0.785, while the largest correlation value is 0.775. The biggest correlation value is under the smallest AVE root value; this means that all correlation values are smaller than AVE root value. These results indicate that each variable in this study has fulfilled discriminant validity.

**Table 6.** The value of composite reliability and Cronbach's Alpha

Variable	Composite Reliability	Cronbach's Alph
LSQ (X)	0.928	0.911
CR (Y)	0.875	0.808
CS (Z)	0.865	0.791

Logistic service quality, customer retention and customer satisfaction variables have composite reliability values > 0.7 and Cronbach's alpha value > 0.7, so that each research variable has fulfilled the composite reliability.

**Table 7.** The value of R-Square

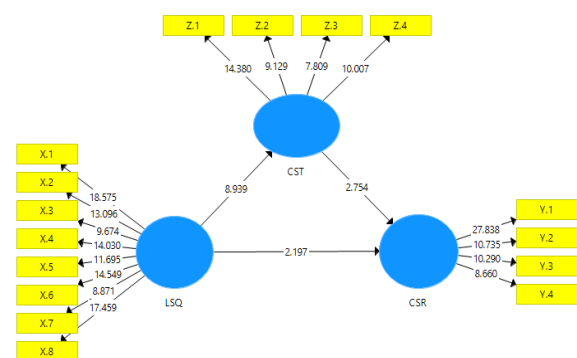
Endogen Variable	R-Square
Customer Retention (Y)	0.659
Customer Satisfaction (Z)	0.540

The R-Square value for customer retention of 0.659 means that the percentage of customer retention that can be explained by logistics service quality and customer satisfaction is 65.9%. R-Square value for customer satisfaction of 0.540 means that the percentage of customer satisfaction that can be explained by logistics service quality is 54%. Furthermore, the assessment of goodness of fit is known from the value of Q-Square. Q-Square value has the same meaning as the coefficient of determination (R-Square) in the regression analysis, the higher the Q-Square, the model can be said to be more fit with the data.

From the calculation result, it is obtained a Q-Square value of 0.843, meaning that the extent of diversity of research data that can be explained by the research model is 84.3%, while the remaining 15.7% is explained by other factors outside the model. Based on these results, the model in the study already has good goodness of fit.

## 5. Hypothesis Testing

The results of the hypothesis testing or the inner model is described in Graph 3.



**Graph 3.** The value of T-statistic

**Table 8.** Hypothesis testing

Hypotheses	Path Coefficient	T-statistic	Remark
H <sub>1</sub> LSQ (X) → CS (Z)	0.735	8.939	accepted
H <sub>2</sub> LSQ (X) → CR (Y)	0.357	2.197	accepted
H <sub>3</sub> CS (Z) → CR (Y)	0.512	2.754	accepted

As shown in Table 8, the results of the hypothesis testing can be explained as follows:

- H<sub>1</sub> is accepted, meaning that logistic service quality has proven to have an effect on customer satisfaction in the company, indicated by the value of t-statistic of 8.939

> 1.96. The effect of logistic service quality on customer satisfaction is positive as indicated by the path coefficient of 0.735. This result means that logistic service quality is getting better, it will significantly increase customer satisfaction at the company. On the other hand, bad logistic service quality will significantly reduce customer satisfaction in the company. The results of this study is proven to support the results of a research conducted by Kilibarda and Andrejic (2016) who find logistics service quality (LSQ) having a significant relationship with customer satisfaction. The same statement is also stated by Politis et al. (2014) who find a significant effect of the relationship between logistics service quality and customer satisfaction.

The average corporate customer assessment, who become the research respondents the logistic service quality of the company, is quite good. This is because the company concerns to help consumers' problems, provides information about services that can be chosen by customers, makes it easy for customers to order logistics services, delivers packages in good conditions, keeps the quantity and time of orders as promised to customers, has a good ability to send packages without damage, provides good ground handling during the delivery time, has given a guarantee to send the goods to the customer in suitable conditions, and has the ability to deliver the product on time. Among the eight indicators used to measure the logistic service quality at the company, the company's concern to help consumers' problems and the ability of the company to handle packages sent to customers during shipping are considered to be less satisfactory by the customers. Therefore, it is very important for the company to improve the ability to help consumer problems and to handle packages properly during shipping.

b.  $H_2$  is accepted, meaning that logistic service quality has been proven to have an effect on customers, indicated by the t-statistic value of  $2.197 > 1.96$ . The effect of logistic service quality on customer retention is positive as indicated by a path coefficient of 0.357. This result means better service quality logistics will significantly increase customer retention in the company. On the other hand, poor logistic service quality will significantly reduce customer retention in the company. The results of this study have proved to support the results of a research conducted by Micu et al. (2013), which reveals a significant influence between LSQ and customer retention. The quality of logistics services is considered as a critical success driving factor and company's differentiation tools to increase consumer loyalty. A research by Darzi and Bhat (2018) also explains that the high perception of customers about the quality of services provided by logistic providers is one of the important reasons for customers not to switch to other logistics service providers.

The results of the descriptive analysis of Customer Retention (Y) variable indicates that the average customer has a high customer retention to the company.

This is because the customers consider they will buy back products from the company, have bought products from the company several times in one month, have bought several variants of the products offered by the company, and have recommended the company as a rice supplier company to other friends or relatives who run a rice shop. Among the four indicators used to measure the company's customer retention, the number of customer purchases at the company within one month has the smallest value. Therefore, it is very important for the Company to be able to increase the number of customer purchases in the future

- c.  $H_3$  is accepted, meaning that customer satisfaction is proven to have an effect on customer retention, indicated by the t-statistic value of  $2.754 > 1.96$ . The influence of customer satisfaction on customer retention is positive as indicated by a path coefficient of 0.512. The result means that increasingly satisfied customer will significantly increase customer retention in the company. On the other hand, increasingly dissatisfied customer will significantly reduce customer retention in the company. The results of this study prove to support the results of a research by Ibojo (2015) who find customer satisfaction as an important factor that must always be considered to achieve the stated organizational goals. Customer satisfaction also directly affects customer retention in order to buy products repeatedly within a long period of time. This is consistent with the results of a research conducted by Darzi and Bhat (2018) who finds a significant influence between customer satisfaction and customer retention. The results of the descriptive analysis of customer satisfaction variable (Z) indicate that the average customers are satisfied with the company. That is because customers are satisfied with the company's ability to handle customer complaints, ability to establish good relations with customers, ability to accept criticism and suggestions for services provided, and customers are satisfied with the services provided company as a whole. Among the four indicators used to measure the customer satisfaction in the company, the services provided by the company's logistics service provider as a whole have the smallest value. In this case, it is very important for rice producing company to increase customer satisfaction related to the overall customer service satisfaction problem.

**Table 9.** Direct Effect and Indirect Effect

	<i>Direct Effect</i>	<i>Indirect Effect</i>
<i>LSQ (X) → CR (Y)</i>	0,357	$0,735 \times 0,512 = 0,376$

The value of the indirect effect of logistic service quality on customer retention through customer satisfaction is 0.376, greater than the direct effect of logistic service quality on customer retention which is only 0.357. The result suggests that customer satisfaction can mediate the effect of logistic service quality on customer retention in the company. This means that logistic service quality is getting better, will increase customer satisfaction at the company, which in turn will increase customer retention at the company. The result is in line with a research by

Saribanon et al. (2016) which claims customer satisfaction as the intervening variable between quality logistics services and repeat purchases.

## 6. Conclusion

The results show that the ability of good logistics services will make customers become satisfied and the level of customer satisfaction increase. Satisfied customers will not hesitate to buy again products from the company. Some factors that need to be considered by the management of rice-producing companies are the company needs to create a team to receive and handle customer problems. The company can also conduct customer surveys, either through complaint and suggestion boxes or through direct customer surveys after the service is delivered. For future researches, other variables such as customer loyalty can be added as a variable. In addition, it is necessary to increase the number of samples so that it is not limited to the customers of one rice-producing company, but from several other rice-producing companies.

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