

# Effect of Product Quality and Service Quality on Customer Loyalty Mediated by Customer Satisfaction

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## Abstract

*UD Ikan Catfish in Bekasi is a trading business that sells catfish, which is a business engaged in the trade of catfish. UD Ikan Lele in Bekasi to improve customer satisfaction in the trading business, entrepreneurs must improve product quality and service quality in serving customers. The formulation of the problem in this study is how to manage the catfish trading business in Bekasi to increase customer satisfaction which can have a positive impact on increasing customer loyalty. The population in this study are consumers from various circles from students to housewives, where the sampling technique uses Simple Random Sampling and the number of samples is 140 respondents. The data analysis technique used is 2-stage multiple linear regression. Based on the results of the analysis, it can be seen that the calculated  $t$  value for product quality (2.369) and service quality (5.511) variables  $> t$  table 1.960, so that product quality and service quality partially have a positive and significant effect on customer satisfaction. Product quality and service quality simultaneously have a positive and significant effect on customer satisfaction, because the calculated  $F$  value is 49.610  $> F$  table 3.00. calculated  $t$  value of the unstandardized predicted value variable is customer satisfaction 12.632  $> t$  table 1.960, so that customer satisfaction has a positive and significant effect on customer loyalty.*

## Keywords

product quality; service quality; customer loyalty; and customer satisfaction



## I. Introduction

Catfish (*Clarias gariepinus*) is a fishery community that is quite popular in the community apart from other types of freshwater fish. This fish comes from the African continent and first came to Indonesia in 1984. This catfish can be called keli fish, which is a type of fish that lives in freshwater. The characteristics of catfish are very easily recognized by the public, namely by their slippery body, flat and elongated shape, and having a "whisker" in the mouth.

In addition, catfish have advantages over other types of fish, namely the growth of the body is relatively fast, easy to adapt to poor water quality, anti-disease, and can be kept in aquaculture containers. In the life of the community, catfish is one of the nutritious food ingredients and can be served as a side dish. With higher protein than other types of fish and better than animal meat. The nutrition of catfish will increase if it is processed properly and before being processed catfish cultivators maintain it properly.

Therefore, *customer satisfaction* is very useful for distributors or catfish cultivators. According to Kotler and Armstrong (2018:39) customer satisfaction is one of the main drivers that connects companies and customers in the long term. While the definition of customer satisfaction according to Andi Riyanto (2018:118) customer satisfaction is a comparison of the quality of service experienced by customers, which is expected by

customers, if the quality experienced by customers is lower than expected, dissatisfaction will occur. If the customer is as expected, the customer will be satisfied, and if the quality of Service Quality is more what is expected, the customer will be very satisfied. This means an assessment that a form of privilege from a product or service itself, provides a level of comfort associated with fulfilling a need, including meeting needs below expectations or meeting needs exceeding customer expectations.

Recently, it is often found that the type of business that is developing in the livestock sector, such as catfish farming and similar types of business. Business or business in the field of animal husbandry has a great opportunity because if you have good catfish seeds, it will produce good catfish as well. In the intense competition from home businesses in catfish farming, every farmer tries to respond and understand consumer needs, thus making catfish sales have to deal with it. Businesses engaged in animal husbandry, service quality and product quality become one of the determinants of customer satisfaction which has a positive and long-term impact on cultivators.

## II. Review of Literature

### 2.1 Product Quality

According to Wijaya (2018: 9) means: the quality of goods and services is the overall combination of characteristics of goods and services according to marketing, engineering, production, and maintenance which makes the goods and services used meet the expectations of customers or consumers. Quality is something that is decided by the customer. That is, quality is based on the actual experience of customers or consumers of goods and services which are measured based on certain requirements or attributes. Is to show various functions which include durability, reliability, accuracy, and ease of use of a product. The indicators of product quality according to Martinich in Yamit (2017:11) are:

1. *Performance*, has the characteristics of
2. Reliable quality
3. *Features*, has variations or types of product
4. *Conformance to specification*, in accordance with the specifications requested by consumers
5. *Durability*, has good durability

### 2.2 Service Quality

*Service quality* or what is called service quality. According to Kasmir (2017: 47) service quality is defined as the act or deed of a person or organization aimed at providing satisfaction to customers or employees. Organization must have a goal to be achieved by the organizational members (Niati et al., 2021). According to Arianto (2018: 83), service quality can be interpreted as focusing on meeting needs and requirements, as well as on timeliness to meet customer expectations. Quality of service can apply to all types of services provided by the company while the client is in the company. So, the business pioneered by the owner if you want to get loyal customers must meet the best service quality.

Planning a strategic process that includes quality objectives in accordance with its vision, reviewing process reviews of effective tools to change organizational behavior, implementation communication is a quality strategy in organizations that is influenced by the communication process within the company and the most important thing is recognition and appreciation which is an important aspect for implementation. quality strategy for each employee who performs well. In addition to the principles, there are also

things that need to be considered in service quality, namely, timeliness, accuracy, courtesy and hospitality, responsibility, completeness, convenience, variety of models, quality of personal service, comfort, and supporting attributes.

### 2.3 Customer Loyalty

*Customer Loyalty* or called customer loyalty. According to Griffin (in Robby, 2017: 351) customer loyalty is a consumer who is said to be loyal or loyal if the consumer shows buying behavior on a regular basis or there is a condition where it requires consumers to buy at least twice in a certain time interval. Loyalty is consumer loyalty given to a product that is said to meet consumer needs. According to Tjiptono in Robby (2017: 353) explains that the indicator of consumer loyalty, namely making repeat purchases is the purchase intention of the consumer more than one purchase, recommending to other parties is suggesting or recommending to others about the product he bought, not intending to buy it. Switching is a loyal consumer of the product or brand he likes and is reluctant to change brands, and talking about positive things is talking about positive things for the product purchased.

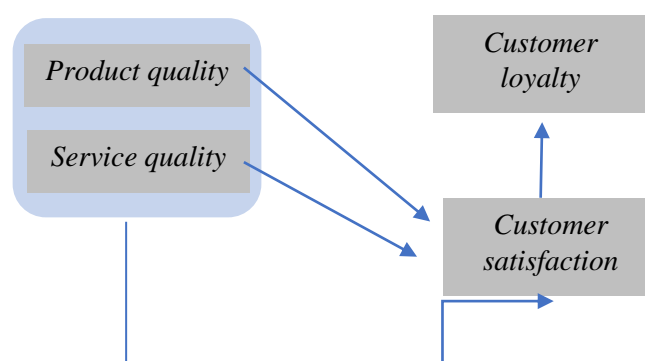
### 2.4 Customer Satisfaction

*Customer satisfaction* or also called customer satisfaction. According to Park in (Irawan 2021: 54), expressing customer satisfaction is a customer's feeling in response to a product or service that has been consumed. Customer satisfaction can also be seen from how entrepreneurs can meet their needs and exceed customer expectations, while customer dissatisfaction can be said to have not fulfilled their expectations.

In addition, customer satisfaction also has a driving factor so that customers get satisfaction in transactions, namely good product quality so that customers feel satisfied and not disappointed, relatively cheap prices, service quality with friendly and good service to customers can feel satisfied to shop, Emotional factors that are seen from self-esteem or social values that are seen by customers as being satisfied with certain brands, and the cost or ease of getting products or services are factors that make customers provide their own value for that satisfaction.

### 2.5 Empirical Research Model

Based on the problems faced by catfish entrepreneurs and the review of the Library, a theoretical framework can be made that shows the effect of *product quality*, *service quality* on *customer loyalty* in realizing *customer satisfaction* as shown in Figure 1.



**Figure 1.** Research Method

### Hypotheses:

- H1: *Product quality* has a positive and significant effect on *customer satisfaction* on catfish raw materials.
- H2: *Service quality* has a positive and significant effect on *customer satisfaction* on catfish raw materials.
- H3: *Product quality* and *service quality* simultaneously affect *customer satisfaction* on catfish raw materials.
- H4: *Customer satisfaction* has a positive and significant effect on customer loyalty in catfish raw materials.

### 2.6 Previous Research

Previous research is research that has been done, in this case previous research can be described systematically about the results obtained in relation to the research being carried out.

**Table 1.** Previous Research

No.	Author	Year	Title	Results
1.	Rofianah, Patricia Dhiana Paramita, Aziz Fathoni	2016	Effect of Product Quality, Service Quality and Customer Perceived Value on Customer Loyalty with Mediated Customer Trust at the Alfamart Boja Kendal Mini Market	(3.118), service quality (3.154) and customer perceived value (2.782) > t table 1.66515, so that product quality, service quality and customer perceived value partially have a positive and significant effect on customer trust. Product quality, service quality and customer perceived value simultaneously have a positive and significant effect on customer trust, because the calculated F value is 32.367 > F table 2.73. The calculated t value of the unstandardized predicted value of the customer trust variable is 3.890 > t table 1.66515, so that customer trust has a positive and significant effect on customer loyalty.
2.	Yosua Ksatria Aria Sastama	2012	Analysis of the Effect of Service Quality and Product Quality on Customer Loyalty Mediated by Customer Satisfaction	Based on the results of structural model analysis, it can be seen that Service Quality affects the level of customer satisfaction and trust, product quality affects the level of trust and customer loyalty, while trust affects customer loyalty level.

3.	Ario Arzaq Akbar1, Tjahjono Djatmiko, Ir., MBA2	2016	Effect of E-Service Quality on E-Customer Satisfaction and E-Customer Loyalty at Lazada.co.id	The results obtained in this study are e-service quality has a positive and significant effect on e-customer satisfaction, e-customer satisfaction has a positive and significant effect on e-customer loyalty, e-service quality has a positive and significant effect on e-customer loyalty and e-service quality has an indirect effect on e-customer loyalty through e-customer customer satisfaction.
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### III. Research Method

#### 3.1 Types and Sources of Data

The types of research used in this study were qualitative and quantitative research, while the data sources used were primary data. The primary data sources in this study were the customers of UD Ikan Lele in Bekasi.

In this study, research variables are divided into 3 (three), namely:

##### 1. Independent Variable

Independent variable or independent variable is a variable that affects or is the cause of the change (Sugiyono, 2018: 61). So named because this variable is independent in influencing other variables. In this study, the independent variables are *product quality* (X1) and *service quality* (X2).

##### 2. Mediation

Intervening/mediation variables are intervening variables or between those located between the independent and dependent variables so that the independent variable does not directly affect the change or emergence of the dependent variable (Sugiyono, 2017:40). This variable is an intervening variable which is located between the independent variable and the dependent variable, so that the independent variable does not directly affect the change or occurrence of the dependent variable. The mediating variable in this study is *customer satisfaction* (Y1).

##### 3. According to Sugiyono (2018:61) the dependent variable is a variable that is affected or which is the result of the existence of an independent variable. In this study the dependent variable is *customer loyalty* (Y2)

#### 3.2 Population and Research Sample

According to Sugiyono (2018:130) defines population as a generalization area consisting of objects/subjects that have certain qualities and characteristics determined by researchers to be studied and then draw conclusions. The population in this study are consumers from various circles, from students to housewives who use catfish as raw materials for cooking.

A sample is a part of the population that is considered representative of the entire population and the number is less than the total population.

The number of samples taken in this study was determined through the *Simple Random Sampling*, where by using the Slovin formula, the number of samples in this study was **140** people.

### 3.3 Data Collection Techniques

According to Sugiyono (2018: 27) states that the data collection method is field research carried out by conducting direct observations with agencies that are objects to obtain primary data and secondary data. The data collection technique used in this research is a field study and distributing questionnaires or questionnaires of 20 items with each variable, namely product quality 4 items, service quality 6 items, customer loyalty 5 items, and customer satisfaction 5 items. The scale used is the Likert scale with levels: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

#### a. Product Quality Variables (X1)

According to Kotler and Armstrong in Utari Wijayanti and Rahma Wahdiniwaty (2016: 37) stated product quality is the product's ability to perform its functions, this includes the time of use of the product, reliability, ease of use and repair, and other values.

No.	Statement	Answer Choices				
		1	2	3	4	5
1.	The taste of the catfish raw material product after processing is good					
2.	The size of the catfish raw material is as desired					
3.	Attractive packaging of catfish raw material					
4.	Cleanliness of the place where catfish raw material is sold is guaranteed					

#### b. Service Quality Variable (X2)

According to Arianto (2018: 83) service quality can be interpreted as focusing on meeting needs and requirements, as well as on timeliness to meet customer expectations. Quality of service can apply to all types of services provided by the company while the client is in the company.

No.	Statement	Answer Options				
		1	2	3	4	5
1.	seller of catfish raw materials provides information about the appropriate delivery period					
2.	seller provides services to consumers appropriately					
3.	seller is easy to contact if there are problems in placing an order					
4.	The services provided by sellers are always polite					
5.	Sellers often give discounts and promos for purchases in large quantities					



6.	Consumers feel benefited in the process of purchasing raw materials with discounts/promotions					
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### c. Customer Loyalty Variables (Y)

Ishaq (2014) in Jeremia and Djurwati (2019:833) says loyalty is a process, at the end of the process, satisfaction has an effect on perceived quality, which can have an impact on loyalty and intentions for certain behaviors of a customer. According to Oliver (2014) in Jeremia and Djurwati (2019:833) customer loyalty is a commitment held by customers to buy or prioritize a product in the form of goods or services consistently, this causes repeated purchases of the same brand, even though the customer gets situational or marketing influence from competitors to switch to another brand.

No.	Statement	Answer Choices				
		1	2	3	4	5
1.	I will faithfully use catfish raw materials					
2.	I am committed to choosing catfish raw materials					
3.	I will recommend catfish raw materials to others					
4.	I want to buy back catfish raw materials					
5.	I still choose to use catfish raw materials even though the company chooses other cheaper raw materials					

### d. Customer Satisfaction Variables (Z)

According to Kotler (2018: 150) customer satisfaction is a feeling of pleasure or disappointment that arises after comparing product performance (results) considered against the expected performance (results).

No.	Statement	Answer Options				
		1	2	3	4	5
1.	The shape of the raw material for catfish is as expected					
2.	The smell of the raw material for catfish is as expected					
3.	The shape of the raw material for catfish eye is as expected					
4.	The texture of the gills of the raw material for catfish in accordance with expectations					
5.	The shape of the scales of catfish raw materials is in accordance with expectations					

## IV. Results and Discussion

In analyzing the data the researchers used qualitative analysis and quantitative analysis as follows:

### 4.1 Qualitative Analysis

Qualitative analysis is discussing the results of research on several cases that can only be described. This description will state the effect of *product quality* and *service quality* on *customer loyalty* mediated by *customer satisfaction* on catfish raw materials.

### 4.2 Quantitative Analysis

Quantitative analysis is carried out on data in the form of numbers. The analysis carried out by statistical tests is as follows:

#### a. Validity Test

Validity test is used to test if a questionnaire statement is declared valid.

**Table 2.** Results of Validity Test

Indicators	R count	R table	Description
<i>Product Quality (X1)</i>			
X1.1	0.529	0.165	Valid
X1.2	0.603	0.165	Valid
X1.3	0.640	0.165	Valid
X1.4	0.594	0.165	Valid
<i>Service Quality (X2)</i>			
X2.1	0.741	0.165	Valid
X2.2	0.638	0.165	Valid
X2.3	0.689	0.165	Valid
X2.4	0.655	0.165	Valid
X2.5	0.624	0.165	Valid
<i>Customer Loyalty (Y1)</i>			
Y1.1	0.570	0.165	Valid
Y1.2	0.680	0.165	Valid
Y1.3	0.724	0.165	Valid
Y1. 4	0.733	0.165	Valid
Y1.5	0.717	0.165	Valid
<i>Customer Satisfaction (Y2)</i>			
Y2.1	0.721	0.165	Valid
Y2.2	0.697	0.165	Valid
Y2.3	0.768	0.165	Valid
Y2.4	0.749	0.165	Valid
Y2.5	0.705	0.165	Valid
Y2.6	0.226	0.165	Valid

Table 2 above shows that the items of all the variables used in this study are **valid** or the measurement of data from the variables studied is correct, because the calculated r value of each variable item ranges from 0.226 to 0.768 which is located above the r table value = 0.165, where r table is the value of r *product moment* in the table.



### b. Reliability Test

Reliability test is a tool to measure the questionnaire which is an item of variables.

**Table 3.** Reliability Test Results

No.	Variables and Indicators	<i>Cronbach Alpha</i>	Information
1.	<i>Product Quality (X1)</i>	0.835	Reliable
2.	<i>Service Quality (X2)</i>	0.814	Reliable
3.	<i>Customer Loyalty (Y1)</i>	0.816	Reliable
4.	<i>Customer Satisfaction (Y2)</i>	0.787	Reliable

Table 3 above shows all variables in this study is reliable, because it has a *Cronbach Alpha* greater than the critical value of 0.6.

### 4.3 Classical Assumption Test

The classical assumption test in this study used a regression model calculated by SPSS 20, namely:

#### a. Multicollinearity

The multicollinearity test is a tool to test the regression model whether there is a correlation between the independent variables.

**Table 4.** Multicollinearity Test Results

No.	Research Variables	Tolerance	VIF	Information
1.	<i>Product Quality (X1)</i>	0.541	1.848	Free of multicollinearity
2.	<i>Service Quality (X2)</i>	0.541	1.848	Free of multicollinearity

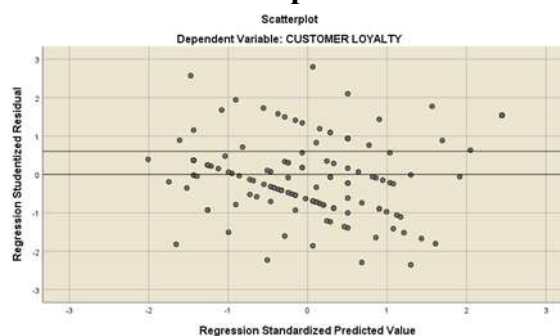
Table 4 above shows that the VIF value of the two independent variables is below 10 and the result of the tolerance value of the two independent variables is greater than 0.10 which means there is no correlation between the independent variables. Thus, it can be concluded that there is no multicollinearity between independent variables in the regression model.

#### b. Heteroscedasticity Test

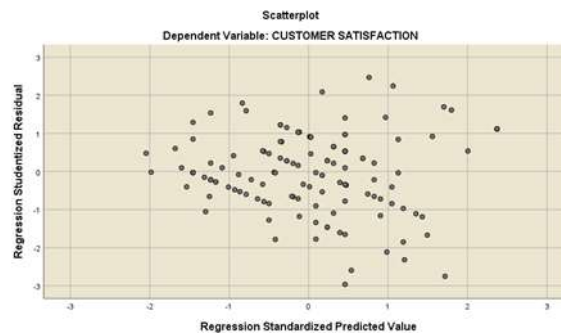
To observe if there is an inequality of variance from the residual observations.

#### Heteroscedasticity test

##### Step 1



## Heteroscedasticity test Step 2

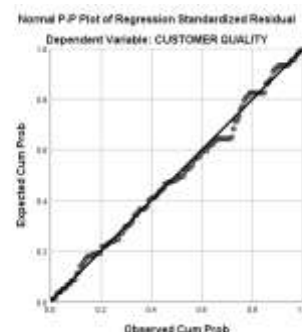
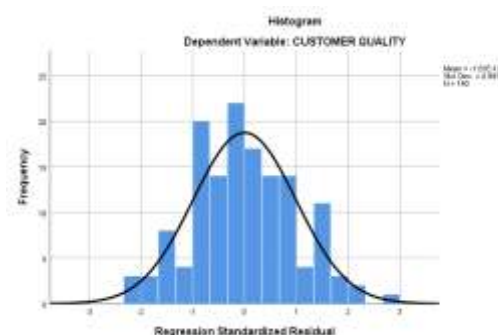


The scatterplot image in step 1 and step 2 shows that the points spread randomly and form a certain pattern clearly. The results of the heteroscedasticity test showed that there was no significant independent variable. This means that the regression model does not have symptoms of heteroscedasticity, thus the regression model is feasible to be used to predict the dependent variable in this study (Y1).

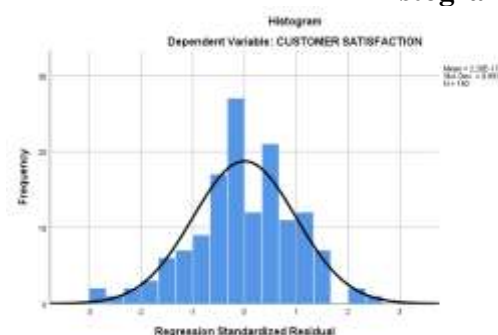
### c. Normality Test

The aim is to test the regression model between the independent variable and the dependent variable having a normal distribution.

#### Data Regression Normality Test Step 1 Histogram Graph



#### Data Regression Normality Test Step 2 Histogram Graph The histogram



The graph in step 1 and step 2 looks residual and is normally and symmetrically distributed, so it is said that it is normally distributed.

### Normal P-Plot

Model		Unstandardized Coefficients		Standardized Coefficients
		B	Std. Error	Beta
1	(Constant)	3.912	1.428	
	PRODUCT QUALITY	.279	.118	.210
	SERVICE QUALITY	.434	.079	.488

The normal p-plot step 1 and step 2 shows that the points spread are squeezed around the diagonal line on the normal p-plot of regression standardized residuals, this shows that the residuals are normally distributed.

#### 4.4 Multiple Linear Regression Analysis

According to Ghazali, 2017: 99), multiple regression analysis is used to test the existence of a mediating variable between the independent and dependent variables.

**Table 5.** Estimation of Regression Step 2

Model		Unstandardized Coefficients		Standardized Coefficients
		B	Std. Error	Beta
1	(Constant)	6.287	.935	
	CUSTOMER LOYALTY	.696	.055	.732

The regression equation between the relationship variables in this study are:

$$1) Y_1 = 2,912 + 0.279 X_1 + 0.434 X_2 + e$$

$$2) Y_2 = 6.287 + 0.696 \hat{Y}$$

#### 4.5 The Goodness of Fit Testing

The test is used to assess the accuracy of the sample regression function in estimating the actual value. Statistically it can be measured from the value of the coefficient of determination, the value of the F statistic and the statistical value of t.

**Table 6.** Results of t-test step 1

Model		Standardized Coefficients Beta	t	Sig.	Description
1	(Constant)		2.739	.007	Significant
	PRODUCT QUALITY	.210	2.369	.019	Significant
	SERVICE QUALITY	.488	5.511	.000	Significant

##### a. Testing the First Hypothesis (H1)

The product quality variable (X1) has a t-count value of 2.369 with a significance level of 0.019, because the t-count value is  $2.369 > t\text{-table } 1.960$  and the t-count significant level is  $0.019 < \alpha = 0.05$  and is positive. So it can be concluded that the first hypothesis (H1) which states that *product quality* has a positive and significant effect on *customer satisfaction* on catfish raw materials **is acceptable**.

### b. Testing the Second Hypothesis (H2)

The service quality variable (X2) has a t-count value of 5.511 with a significance level of 0.000, because the t-count value is  $5.511 > t\text{-table } 1.960$  and the t-count significant level is  $0.000 < \alpha = 0.05$  and is positive. So it can be concluded that the first hypothesis (H2) which states that *service quality* has a positive and significant effect on *customer satisfaction* on catfish raw materials **is acceptable**

### c. Third Hypothesis Testing (H3)

**Table 7.** F Test Results

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	524,784	2	262,392	49,610	000 <sup>b</sup>
Residual	724,609	137	5,289		
Total	1249,393	139			

F arithmetic value  $49,610 > F \text{ table } 3.00$  with a significance of  $0.000 < = 0.05$  and positive sign, it can be concluded that the third hypothesis (H3) which states that *Product quality* and *Service quality* simultaneously affects *customer satisfaction* catfish raw materials **acceptable**.

### d. Fourth Hypothesis Testing (H4)

**Table 8.** Results of t-test

Model	Standardized Coefficients Beta	t	Sig.
1 (Constant)		2.612	.010
CUSTOMER SATISFACTION	.732	12.632	.000

The calculated t value of the unstandardized predicted value of the customer satisfaction variable for catfish raw materials (Y1) is  $12.632 > t \text{ table } 1.960$  with a significance level of  $0.000 < = 0.05$  and a positive sign. So it can be concluded that the fourth hypothesis (H4) which states that *customer satisfaction* has a positive and significant effect on customer loyalty on catfish raw materials **is acceptable**.

### 4.6 Coefficient of Determination (R Square)

The coefficient of determination (R Square) essentially measures how far the model's ability to explain variations in the dependent variable or the dependent variable. The value of the coefficient of determination is between zero (0) and one (1). A small  $R^2$  value means that the ability of the independent (free) variables in explaining the variation of the deepened variable is very limited.

**Table 9.** Test Results for Regression Determination Coefficient

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.762 <sup>a</sup>	.580	.577	1.48509107

a. Predictors: (Constant), CUSTOMER SATISFACTION

Adjusted R<sup>2</sup> regression step 1 of 0.580, which means that the variation of the customer satisfaction variable for catfish raw materials can be explained by the variable product quality, service quality of 0.580 or 52 percent, while the remaining 48 percent is influenced by other variables. other.

## V. Conclusion

1. Product quality variable gives the most dominant influence on customer satisfaction on catfish raw materials when compared to other research variables, such as service quality and customer perceived value, where the magnitude of the effect is 0.210 or 21 percent.
2. The calculated t values for product quality and service quality are 2,369 and 5,511, respectively > t table 1.960 and sig. respectively 0.019 and 0.000 < = 0.05, so it can be concluded that product quality and service quality partially have a positive and significant effect on customer satisfaction.
3. The calculated F value is 49.610 > F table 3.00 with a significance of 0.000 < = 0.05 and is positive, it can be concluded that the third hypothesis (H3) which states that *product quality* and *service quality* simultaneously affects *customer satisfaction* on catfish raw materials.

## Suggestions

Catfish farmers should:

1. Product quality offered by farmers should be improved, because product quality has the most dominant influence on customer satisfaction, when compared to other variables in this study, it will have a positive impact on increasing customer loyalty.
2. The service quality of cultivators should be improved, even though service quality has an influence on customer satisfaction when compared to other variables in this study.
3. Increasing customer loyalty, this can be done by:
  - a. offering products at relatively low prices
  - b. providing satisfactory service to customers.
  - c. providing price variations of various forms of catfish, making it easier for customers to get the products they need.

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