Effect of The Implementation of Queue System on Customer Satisfaction

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Abstract: This study aims to determine whether the queuing system affects customer satisfaction. Data collection using primary data obtained from questionnaires using purposive sampling technique. The object and population is all customers of PT Bank Central Asia Tbk Ahmad Yani Makassar Branch Office totaling 5,970 customers while the sample taken is 100 respondents based on the Slovin formula. The results of the questionnaire have been tested for validity and reliability, as well as tested classic assumptions in the form of assumptions of normality, heteroscedasticity and linearity. Methods of data analysis using simple regression techniques with SPSS 21 program. The results showed that the proposed hypothesis was accepted because it showed positive and significant hypothesis test results. This means that the queuing system has a positive and significant effect on customer satisfaction.

Keywords: Queuing System, Customer Satisfaction

INTRODUCTION

Queuing is an incident that can be found in various places that provide services to the community, including hospitals, banks, toll roads, etc. The queuing process is a tedious thing for the community for various reasons, including the long queuing process, space where waiting for the queue is uncomfortable, and the queuing system cannot provide queuing arrangements for the community (Aidi & Abstract, 2014). Queuing problems arise when several consumers come to a service facility to ask to be served, but at the same time, the facility is unable to serve all, and one of the companies that cannot be separated from queuing problems is a bank (Aji & Bodroastuti, 2012). Queuing or waiting is a phenomenon that becomes our daily routine. Moreover, the number of people is increasing so that the need for specific needs is limited. The emergence of a queuing factor is due to an imbalance between service demand and the system's capacity that provides the service (Fridayanthie, 2017). This excess capacity keeps the service busy, so customers who come cannot immediately get service. As a result, it will result in the loss of customers.

However, based on the results of preliminary observations made by (Ishak & Azzahroh, 2017; Tumbuan et al., 2014; and Atmaja, 2018) found that the effectiveness of bank services to customers is still very far from effective because at the time of the transaction, it was still crowded with customers, causing the emergence of a long queue. Officers and room capacity that is unable to accommodate the number of visitors. In general, the busy period can be described by the queuing system's process starting when the customer arrives, then waiting, and ends when the customer leaves the system. During busy periods there is always at least one customer in the system.

Also, the addition of service facilities will have an impact on the operational costs that must be incurred by the company (Anastasia & Herlimus, 2001). It also does not guarantee that there are no idle service facilities due to the absence of people in the queue. However, the increasing number of tellers operating, the more customers can be served, and each customer has a more extended opportunity to be served. In other words, customers can be served as best they can without rushing

because of the large number of customers in the queue. With fast and easy service it will make customers feel satisfied because this service makes customers loyal so that they will come back again (Aryani & Rosinta, 2010).

Previous research from (Ekoanindiyo, 2011) explained that simultaneously the queuing system had no significant effect on customer satisfaction. However, according to research from (Harahap et al., 2014; and Arwindy et al., 2014), it is explained that simultaneously the queuing system has a significant effect on customer satisfaction.

LITERATURE REVIEW

Definition of Bank

Banks are financial institutions whose main activity is to collect funds from the public and channel them back to the public and provide other bank services (Wilarjo, 2014). So it can be concluded that the bank is a financial institution that provides financial transaction services, and in the business process, the bank requires the trust of the public to collect their funds and channel them in the form of loans (Wiwoho, 2014).

Definition of Queue

Queues are people or goods in a line waiting to be served (Shita & Triyono, 2011). Queues can occur if the arrival rate is greater than the service level. If the arrival time can be known with certainty, it will be possible to schedule customer service capacity to come so that customers will know how long they have to wait (Prihati, 2012; and Pardede et al., 2018). It can be beneficial for customers or consumers to carry out other activities. The characteristics of the queuing system there are three components, namely arrival, queuing discipline, and service facilities. Queuing system indicators are arrival patterns, customer behavior, queuing rules, service systems, and order (Dahoklory & Ismail, 2017).

Definition of Customer Satisfaction

Customer satisfaction is the feeling of pleasure or disappointment of someone who arises after comparing the performance (results) of the estimated service against the expected performance (Dharmayanti, 2006). (Sondakh, 2015; and Risal, 2019) provide the view that customers are very dependent on customer perceptions and expectations, so as the party providing services, it is necessary to know several factors that influence this :

1) The needs and desires felt by customers when conducting transactions with banks. If the needs and desires are significant, then the customer's expectations will be high, and vice versa.
2) Experience when using products or services from banks or their competitors.
3) Experience from friends, where they will tell the quality of products or services from the bank. It affects customer satisfaction. Customer satisfaction indicators are the right choice, conformity of expectations, and facility satisfaction.

RESEARCH METHOD

This research approach uses a descriptive quantitative approach that emphasizes numerical data. The influence of the variables under study will be known and produce conclusions that will explain the object's description understudy. In this study, the population is the customer at PT Bank Central Asia Tbk Ahmad Yani Makassar branch office, amounting to 5,970 customers. Determination of the sample in this study using a non-probability sampling technique with an approach purposive sampling. To find out the sample size the Slovin formula is used, namely:

$$n = \frac{N}{1 + N (e)^2}$$

Information :
 n = Number of samples
N = Number of population
e^2 = error tolerance

$$n = \frac{5.970}{1 + 5.970 \cdot (0,1)^2} = \frac{5.970}{5.971 \cdot (0,01)} = \frac{5.970}{59,71} = 99,98 = 100$$

From this calculation, the sample size is 99.98 or rounded to 100 respondents.
        The analysis used to manage the data in this study is a simple regression analysis with data management through the SPSS 21 program. The hypothesis in this study is :
H1: The queuing system has a positive and significant effect on customers

Table 1. Examples of scientific Tables

Group	Pre test	Treatment	Post test
Experiment (E)	O1	X1	O3
Control (K)	O2	X2	O4

RESULTS AND DISCUSSION

        From table 2, it can be ignored that women dominate the customers of PT. Bank Central Asia Tbk Ahmad Yani Makassar branch office. The customers of PT. Bank Central Asia Tbk branch offices of Ahmad Yani Makassar are dominated by the age of 20-30 years as many as 56 people. The customers of PT Bank Central Asia tbk Ahmad Yani Makassar branch offices are dominated by undergraduate education levels. Most of the samples in this study were 8 students, 24 civil servants, 26 entrepreneurs, and 42 others.

Table 2. Characteristics of respondents

Gender	Frequency	Percent
Man	42	42,0%
Woman	58	58,0%
Total	**100**	**100,0%**
Age	**Frequency**	**Percent**
< 20 years	5	5.0%
20 – 30 years	56	56.0%
31- 40 years	30	30.0%
> 41 years	9	9.0%
Total	**100**	**100.0%**
Education	**Frequency**	**percent**
Senior Hgh School	16	16,0%
Bachelor	84	84.0%
Total	**100**	**100.0%**
Occupation	**frequency**	**percent**
Student	8	8.0%
PNS	24	24.0%
Entrepreneur	26	26.0%
Others	42	42.0%
Total	**100**	**100.0%**

Table 3. Respondents based on queue timing

Time	Frequency	Percent
5 minutes	23	23.0%
10 minutes	61	61.0%
15 minutes	15	15.0%
30 minutes	1	1.0%
Total	**100**	**100.0%**

Based on table 3, can be concluded that the average queue time of respondents at PT Bank Central Asia tbk Ahmad Yani Makassar branch office is 10 minutes.

In this study, the validity test used the Pearson correlation to determine the relationship between 2 variables with SPSS 21. Measurements were made by correlating the questions' scores with the independent and dependent variables' total scores. An indicator is valid if the Pearson correlation value ($r \geq 0.30$) and the level are significant ($\alpha \leq 0.05$). Then the results of the validity test can be seen in the following table:

Table 4. Validity Test for Queuing System variables (X)

Indicator Variable	Correlation	Sig	Limit value (r)	Info
X11	0,700	0	0,30	Valid
X12	0,745	0	0,30	Valid
X13	0,855	0	0,30	Valid
X14	0,818	0	0,30	Valid
X15	0,773	0	0,30	Valid

Table 4 explains that all indicators of the queuing system variable (X) have a value correlation above 0.30 and a significant value below 0.05. So it can be said that all indicators of the queuing system in this study are valid and significant.

Table 5. Validity Test for Customer Satisfaction variables (Y)

Indicator Variable	Correlation	Sig	Limit value (r)	Info
Y11	0,802	0	0,30	Valid
Y12	0,835	0	0,30	Valid
Y13	0,823	0	0,30	Valid

Source: Data processed in 2020

The 5 tables above explain that all indicators of the customer satisfaction variable (Y) have a value correlation above 0.30 and a significant value below 0.05. So it can be said that the overall indicators of customer satisfaction in this study are valid and significant.

In this study, the reliability value is expressed by the Cronbach alpha coefficient based on the lowest reliability criterion, namely 0.60. Reliability testing in this study can be seen as follows:

Table 6. Reliability Test

Variable	Cronbach alpha	Limit value	Info
Queuing System (X)	0,837	0,60	Reliable
Customer Satisfaction (Y)	0,767	0,60	Reliable

Table 6 explains that the Cronbach alpha value for the queuing system variable is 0.837> 0.60 and for the customer satisfaction variable 0.767> 0.60. So it can be denied that the total variables in this study consist of statements that are realistic or meet realistic standards.

Simple regression analysis is used to examine the nature of the cause-effect relationship between the independent variable (X) and the dependent variable (Y).

Table 7. Simple regression analysis test results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,757[a]	,573	,569	,24209

Table 7 shows that the correlation coefficient of determination (R) is 0.757, which means that the queuing system variable's correlation on customer satisfaction has a strong relationship. The value of R square, which is equal to 0.573 or 57.3%, means that customer satisfaction is influenced by the queuing system while the remaining 42.7% of customer satisfaction is influenced by other variables not examined.

Tabel 8. Cofficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig
(Constant)	B	Std. Error	Beta		
QUEUE	,300	,340		,882	,380
SYSTEM	,915	,080	,757	11,468	,000

a. Dependent Variable : Customer Satisfaction

Table 8 shows that the queuing system regression coefficient (X) on customer satisfaction (Y) is 0.915, and a constant value is 0.300. Thus the regression equation is formed as follows:

$$Y = 0,300 + 0,915X + e$$

Based on table 8, this regression model shows that the queuing system's significant value is 0.000 <0.05, which means that the queuing system's independent variable partially has a positive and significant effect on the dependent variable, customer satisfaction. It means that the queuing system has increased by 1%, so customer satisfaction has increased by 0.915%.

Used to avoid the significant influence of the independent variable (X) on the dependent variable (Y) significantly.

Table 9. Hypothesis Test Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig
		B	Std. Error	Beta		
1	(Constant)	,300	,340		,882	,380
	QUEUE SYSTEM	,915	,080	,757	11,468	,000

Table 9 shows that the queuing system variable has a tcount of 11,468 with a ttable of 1.984 and has a significance value of 0.000. It means that the value of tcount (11,468)> ttable (1.984) and a significant value of 0.000 <0.05. It shows that H0 is rejected and H1 is accepted. It can be said that the queuing system has a significant and positive effect on customer satisfaction.

H₁ : Queuing system has an effect on accepted customer satisfaction

These results support the research conducted by Bagas Ilham Lucyantoro (2017). The results show that digital marketing and queuing theory have a significant effect on customer satisfaction. Also, Cahyadi (2018) shows that queuing system services and facilities significantly affect customer satisfaction.

CONCLUSIONS AND SUGGESTIONS

Based on the research results, the title "Analysis of the queuing system on customer satisfaction at PT Bank Central Asia Tbk Ahmad Yani Makassar Branch Office" and the statistical testing tools used in the SPSS 21 application can be concluded as follows:

1. Based on the hypothesis testing results using simple regression analysis, it shows that the queuing system variable (X) has a significant effect on customer satisfaction (Y), or the hypothesis is accepted.
2. Based on the partial test (t-test) shows that the queuing system (X) has a positive and partially significant effect on customer satisfaction (Y).

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