Relationship of Exogen Variables for Customer Use and Satisfaction of Delivery Services

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Abstract. The purpose of this paper is to determine the relationship of exogenous variables consisting of quality logistics service variables, brand image, and social media marketing on usage decisions and customer satisfaction. The shipping services studied specifically for domestic shipments consisted of J&T, JNE, TIKI, Wahana, SiCepat, ID Express, and Pos Indonesia using perception data through questionnaires. Respondents have at least used delivery services twice. Determination of the number of respondents using the maximum likelihood technique. The tool used in this research is Structural Equation Modeling. The results of this study indicate that the variables of logistics service quality and social media marketing have a positive and significant effect on usage decisions. The relationship between brand image and usage decisions cannot be proven because there is multicollinearity, which causes this variable to be excluded from the study. The equation of the relationship model of exogenous variables on the use and customer satisfaction of expedition services without using the brand image variable is as follows, \( Y_2 = 0.371X_1 + 0.482X_3 \).

Keyword: Exogen Variables, Delivery Services, Structural Equation Modeling

1 Introduction

The goods delivery industry in the pandemic era is growing very rapidly [1]. This is only to answer health protocols. This growth is supported by the ease of technology, information, and the rapid development of e-commerce. Indonesia has the largest population in Southeast Asia, this indicator is a promising market share. A large number of millenial populations causes online shopping activities to become an alternative to meet the needs of life. The goods delivery service industry will continue to grow along with the shift in consumer behavior who prefers to shop through e-commerce.

Several companies that provide expedition services, among others, research that has been done are J&T, JNE, TIKI, Wahana, SiCepat, ID Express, and Pos Indonesia. Freight forwarding companies are competing to attract customers' hearts. Several things the company does to compete with others include maintaining the best service, a good brand image, and massive promotions. In the current era, the loyalty variable has begun to fade because shipping companies are always innovating so that service remains excellent. Customer behavior in choosing delivery services has changed due to intense competition between companies. Changes in customer behavior make many researchers have research space to find information about what variables affect usage decisions, et and customer satisfaction. Rosyada. et. al. (2020) states that expedition service providers can use LSQ (Logistic Service Quality) as a tool to find out customer desires to improve service quality. Several previous studies such as that conducted by [2] stated that service quality and price had a positive and significant effect on the decision to use JNE Freight Forwarding Services. [3] states that service quality, brand image, and price have a positive and significant effect on the decision to use Delivery Services.

Research conducted by [4] states that price and service quality have a positive and significant effect on decisions to use freight forwarding services. [5] states that brand image and service quality variables have a positive and significant effect on service purchasing decisions. The results of research conducted by [6] state that social media marketing has a positive and significant effect on purchasing decisions. [7] examines the influence of brand image, product quality, and price perception on the decision to use JNE courier services and states that there is an important influence between brand image and service use decisions, which means

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that brand image has a direct close relationship with usage decisions and has an influence. [8] state that service quality and brand image variables have a significant effect on customer satisfaction, and customer satisfaction has a significant effect.

The purpose of this research is to analyze the equation of the mathematical model and determine the relationship between the variables of logistics service quality, brand image, and social media marketing on usage decisions and customer satisfaction, which focuses on consumers who choose to shop through e-commerce. The relationship of exogenous variables to the use and satisfaction of shipping service customers can be seen in Fig. 1.

Fig. 1. Research model of the relationship of exogenous variables to the use and customer satisfaction of expedition services.

2 Literary Reviews

2.1 Logistics service quality

Service quality is not only assessed from the company's point of view but must meet consumer demands and expectations [9; 10]. Logistics Service Quality is the development of service quality that aims to measure customer satisfaction in logistics or goods delivery. The better the quality of logistics services, the more customer satisfaction will increase. Consumer satisfaction will affect the continuity of delivery service providers [8]. According to [11] and [5], service quality is an attitude that results from comparing consumer service quality expectations with the company's performance perceived by consumers. Service quality has been a frequently researched theme in marketing research and logistics research since the mid-1980s, in line with research interests in the field of quality management and satisfaction in companies [12].

Quality of Logistics Service is an effort made by the company in meeting the needs and desires of consumers by optimizing the network of goods and services so that they can arrive on time so that the expectations of the promised time to consumers are fulfilled [13; 2].

2.2 Brand image

Brand image is an important concept in researching consumer behavior. The definition of the brand image according to [7] and [14] is a symbol or sign that can help consumers if they want to determine a product or service they want. Brand image is a consumer's perception of a brand [15; 16; 10]. From this explanation, it can be concluded that the brand image is the consumer's image.

2.3 Social media marketing

The The Brand and Marketing Institute (BMI) survey results show that most customers make purchases with social media in mind. Data shows that 80% of customers in Indonesia are heavily influenced by social media in determining what products to buy. We Are Social research states that Indonesian social media users aged 16-64 years spend an average of 3 hours 26 minutes per day. Indonesia is said to have 160 million or 59% of the total population of Indonesia, active users of social media, 99% of whom access via mobile phones. We Are Social stated that the social media frequently used throughout 2020 included YouTube with 88% of users, WhatsApp with 84% of users, Facebook with 82% of users, Instagram with 79% of users, Twitter with 56% of users, and Line. With 50% of users. According to [17; 18; 19; 20] state that social media marketing is a marketing technique using social media as a means to promote a product or service. Social media marketing is a company's business in terms of communicating, promoting, and selling the products or services they offer through internet services [21; 22; 23; 24].

The internet and social media have a significant contribution in the field of marketing [25]. The increasing use of social media will make companies have to adjust their communication model. Many companies change their marketing platform to social media because of the lower cost of using other media like television. Social media, which was originally a means of socializing and entertainment has now shifted into a place to share information [26].

2.4 Usage Decision

[27] defines usage decisions as a series of stages in assessing and receiving information or data about brands and considering alternative brands on similar products and services in making decisions to choose brands. In general, customers will experience five stages of the process before making a decision in the fig. 2, which include identifying problems, tracing information or data, evaluating several product options, deciding to use, and behaving after choosing to use [28].

Fig. 2. Five stages of the process before making a decision [28].

2.5 Customer Satisfaction

According to [29], customer satisfaction is a person's feelings of pleasure or disappointment that arise after comparing his impression of a product or service with what is expected. The general definition can be
concluded that customer satisfaction is the impression given by the customer to a product or service after using it. This impression arises because of the comparison of satisfaction obtained.

3 Research Methods

The relationship of exogenous variables to the use and customer satisfaction of this expedition service through the steps of the research method as follows. The SEM tool used in this study, the determination of the number of respondents based on the maximum likelihood (ML) technique ranges from 100 to 200 [30], this research data was obtained from distributing questionnaires using a Likert scale (1-5), using probability, Processing of SEM Tool and AMOS Software 23. The processing process is carried out in 4 stages, namely the Measurement Model twice, the first is the initial model, the second after the disposal of the X2 variable, the Structural Model, and the Modified Model, each stage of three stages namely valid, correlation and significance.

4 Discussion

4.1 Data Collection

The questionnaires in this study were distributed to customers of J&T, JNE, TIKI, Wahana, SiCepat, ID Express, and Pos Indonesia Delivery Service Providers, with the criteria for filling out the questionnaire that customers had used these services at least twice. The determination of the number of respondents as many as 155 means that the assumption of SEM with the maximum likelihood (ML) technique is fulfilled.

4.1 Data Processing (Questionnaire Data Processing)

The results showed that all indicators had a CR>2SE value so that all indicators were declared valid. The significance test uses two approaches p<0.05 and compares the t-table at the 0.05 level with df = 29 (sum of all indicators) the t-count value is 1.699 so that all indicators are significant [31]. Exogenous variables with other exogenous variables cannot be significantly correlated from table 1, then the exogenous variable with the largest significant correlation is discarded (X2) [32]. The results showed that the reliability test obtained all reliable results where the results of construct reliability were more than 0.70.

Table 1. Correlation Test

<table>
<thead>
<tr>
<th>Variable 1</th>
<th>Variable 2</th>
<th>Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1 ↔ X2</td>
<td></td>
<td>0.703</td>
</tr>
<tr>
<td>X1 ↔ X3</td>
<td></td>
<td>0.663</td>
</tr>
<tr>
<td>X2 ↔ X3</td>
<td></td>
<td>0.727</td>
</tr>
<tr>
<td>X2 ↔ Y1</td>
<td></td>
<td>0.722</td>
</tr>
</tbody>
</table>

Table 2. Modification Model Validity, Significance and Regression Weight

<table>
<thead>
<tr>
<th>Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>X2 ↔ Y2</td>
</tr>
<tr>
<td>X3 ↔ Y1</td>
</tr>
<tr>
<td>X3 ↔ Y2</td>
</tr>
<tr>
<td>Y1 ↔ Y2</td>
</tr>
<tr>
<td>X1 ↔ Y1</td>
</tr>
<tr>
<td>X1 ↔ Y2</td>
</tr>
</tbody>
</table>

Source: primary data processed

The simultaneous equations of the models in this study are as follows: (Assuming Z1 to Z4 = 0 and see 3)

\[Y1 = f(X) + Z3\]
\[Y1 = f(X1) + f(X3) + Z3\]
\[Y1 = 0.431X1 + 0.561X3 + Z3\]
\[Y2 = ff(Y1) + Z4\]
\[Y2 = 0.86(0.431X1) + 0.86(0.561X3) + Z4\]
\[Y2 = 0.371X1 + 0.482X3 + Z4\] (1)

a. Hypothesis 1

H1: Quality of Logistics Service has a significant effect on usage decisions.

Based on table 3, the CR value is 11.779 and the t-value is 1.714 (tcount > ttable) so that H1 is accepted where the quality of Logistics Services has a significant effect, with a regression coefficient value of 0.431 on the decision to use. This means that if the Quality of Logistics Service increases by 1 unit, the decision to use the expedition industry will also increase by 0.431.

The regression coefficient of 0.431 is smaller than the regression coefficient of social media marketing on the decision to use, but the results of the frequency distribution of "very satisfied" answers are below 70%.

This shows that the Quality of Logistics Service on the decision to use is very convincing so that management only needs to maintain and improve it. The results of this study are in line with research [2; 3; 4; 33].
b. Hypothesis 2
H2: Brand Image has a significant effect on usage decisions.

This second hypothesis cannot be proven because the Brand Image (X2) variable is excluded from the model because of multicollinearity.

Table 3. Identification of variables and indicator variables

<table>
<thead>
<tr>
<th>Exogenous Variable</th>
<th>Indicator</th>
<th>Endogenous Variables</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logistics Service Quality (X1) [34] and [35]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal Contact Quality (X1.1) [34]</td>
<td></td>
<td>Needs Analysis (Y1.1) [28]</td>
<td></td>
</tr>
<tr>
<td>Order Release Quantity (X1.2) [34]</td>
<td></td>
<td>Information Search (Y1.2) [28]</td>
<td></td>
</tr>
<tr>
<td>Order Procedure (X1.3) [34]</td>
<td></td>
<td>Alternative Evaluation (Y1.3)[28]</td>
<td></td>
</tr>
<tr>
<td>Order Accuracy (X1.4) [34]</td>
<td></td>
<td>Decision to Use (Y1.4) [28]</td>
<td></td>
</tr>
<tr>
<td>Order Condition (X1.5) [34]</td>
<td></td>
<td>Behaviour After Using (Y1.5) [28]</td>
<td></td>
</tr>
<tr>
<td>service for Non-conformance Orders (X1.6) [34]</td>
<td></td>
<td>Satisfied With the Overall Services (Y2.1) [9]</td>
<td></td>
</tr>
<tr>
<td>Punctuality (X1.7) [34]</td>
<td></td>
<td>Service Provider Performance in Line With Expectations (Y2.2) [9]</td>
<td></td>
</tr>
<tr>
<td>Cost (X1.8) [35]</td>
<td></td>
<td>Service provide performance that exceeds expectations (Y2.3) [9]</td>
<td></td>
</tr>
<tr>
<td>Easy to Remember (X2.1) [28]</td>
<td></td>
<td>Satisfied with the overall service quality of employees (Y2.4) [34]</td>
<td></td>
</tr>
<tr>
<td>Brand Image (X2) [28]</td>
<td></td>
<td>Easy to Like (X2.3) [28]</td>
<td></td>
</tr>
<tr>
<td>Full of Meaning (X2.2) [28]</td>
<td></td>
<td>Easy to Transfer to Other Product Lines (X2.4) [28]</td>
<td></td>
</tr>
<tr>
<td>Easy to Transfer to Other Product Lines (X2.4) [28]</td>
<td></td>
<td>Easy to Develop (X2.5) [28]</td>
<td></td>
</tr>
<tr>
<td>Protected (X2.6) [28]</td>
<td></td>
<td>There is Interesting and Entertaining content (X3.1) [36]</td>
<td></td>
</tr>
<tr>
<td>There is Interesting and Entertaining content (X3.1) [36]</td>
<td></td>
<td>There is an Interaction Between The Customer and The Service Provider (X3.2) [26]</td>
<td></td>
</tr>
<tr>
<td>Social media marketing (X3) [36]</td>
<td></td>
<td>Interaction Between Customers (X3.3) [36]</td>
<td></td>
</tr>
<tr>
<td>Ease of Finding Information (X3.4) [36]</td>
<td></td>
<td>Ease of Communicating Information to The Public (X3.5) [36]</td>
<td></td>
</tr>
<tr>
<td>The Level of Customer Trust in Services on Social Media (X3.6) [36]</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
| Fig. 3. Modification of the Exogenous Variable

c. Hypothesis 3
H3: Social media marketing has a significant effect on usage decisions.

Based on the results of the study, the CR value was 11.779 and table was 1.714 (tcount > ttable), so it was concluded that H1 in this hypothesis was accepted, where social media marketing had a significant effect with a regression coefficient value of 0.561 on the decision to use. This means that if social marketing increases by 1 unit, the decision to use the shipping industry will also increase by 0.561.

This social media marketing does have a significant effect on usage decisions, but the results of the frequency distribution show that the "very satisfied" answer is below 50%, which means that social media marketing is volatile and needs management attention.

Given the fairly high correlation number (0.561), if there is a shift towards insignificant influence, it will be fatal and cause considerable losses to management. The results of this study are in line with the research of [36] and [6].

d. Hypothesis 4
H4: The decision to use has a significant effect on customer satisfaction.

Based on table 3, the CR value is 11.779 and table is 1.714 (tcount > ttable). So that in this hypothesis H1 is accepted, namely the use decision has a significant effect on customer satisfaction. The effect of usage decisions on customer satisfaction has a regression coefficient of 0.86 on customer satisfaction. This means that if the decision to use increases by 1 unit, the decision to use the shipping industry will also increase by 0.86. The decision to use on customer satisfaction has a regression coefficient of 0.86 and from the results of the frequency distribution, the answers are very satisfactory, which is above 75%, which means that the decision to use on customer satisfaction is sufficiently maintained and improved. The results of this study support the research of [37].

The processing of the second Measurement Model resulted in the Goodness of Fit and Cut-off Value, which
were still not good. Modification of the Model. If the results of the Measurement Model are not good, then the results of the Structural Model processing are also not good. This is done to find a reference in modifying the model by knowing the modification index (MI). In order for Model Modification (Fig. 3) to produce the best Goodness of Fit and Cut-off Values, the numbers on the Covariance and Regression Weights must be large.

The results of the coefficient of the intervening variable on customer satisfaction have a fairly large value, namely the regression coefficient of 0.86 so that this company even though it is in a state of the covid pandemic, is still very promising and if the freight forwarding industry can handle the application of the modified results, it is possible to make another decision to use delivery services and improve customer satisfaction. Respondents seem to still tolerate indicators of the late arrival of goods, limited communication about a delivery, and complaints of operator service quality, given the frequency distribution results that answered "very well" above 55%. The equation model of the relationship of exogenous variables to the use and satisfaction of shipping service customers produces a mathematical equation that is very promising in this industry, namely Y2 = 0.371X1 + 0.482X3.

5 Conclusion

The results of the equation model for the relationship of exogenous variables to the use and satisfaction of shipping service customers are as follows, Y2 = 0.371X1 + 0.482X3. Quality of Logistics Service has a positive and significant effect of 0.341 on the decision to use shipping services. The influence of brand image on usage decisions cannot be proven because there is multicollinearity, which causes these variables to be excluded from the study. Social media marketing has a positive and significant effect of 0.86 on customer satisfaction with delivery services at the company "J&T, JNE, TIKI, Wahana, SiCepat, ID Express and Pos Indonesia" which focuses on consumers who choose to shop through e-commerce.

Reference


