

## CHAPTER III

### RESEARCH METHOD

#### 3.1. Research Variables

##### a. Dependent Variable

The dependent variable in this research is a consumer's decision to buy. Consumer's decision to buy is an action performed after considering various certain steps before buying a thing or service.

##### b. Independent Variable

The independent variables in this research are free and influencing variables. Variables used in this research are:

##### 1) *Tangibles* (physical evidence)

It includes physical facilities, equipment, staffs and communication medium.

##### 2) *Reliability*

It is an ability to give service immediately and satisfying as promised.

### 3) *Responsiveness*

It is staff's desire to help the customers by giving perceptive service.

### 4) *Assurance*

It includes ability, politeness, and reliable characteristics owned by the staff, free of dangers, risks or doubts.

### 5) *Empathy*

It includes the easiness in making relationships, good communication, and honest attention to the needs of customers.

## 3.2. **Required data**

Required kinds of data to arrange this report are primary and secondary data.

### a. Primary data

It is the data directly derived from its sources (it is related to the respondents). This kind of data is gathered using the following methods:

### 1) Interview

A process of oral asking-answering question (interview) that is directly conducted to the owners or staff to get required information.

### 2) Questionnaire

It is a technique to gather data by giving questionnaires to the respondents with questions to answer related to the existing issues.

b. Secondary data are advanced data that are processed and presented both by the data gatherer or other using:

- Literary research, that is gathering data from various written sources, both from textbooks (literature) supporting the research and resources from outside the company.

## 3.3. Population and Sample

### a. Population

It is the whole number of all objects (individuals) to study in a certain area. In this research, the population is all customers who have ever bought the products of BPR Shinta Daya Kalasan-Yogyakarta.

## b. Sample

It is a part of population that is observable and represents all members of population. Sample in this research is determined using the methods below:

- *Purposive sampling*, that is gathering elements stated in the sample based on specific characteristics or nature viewed closely. In this case, the nature is the characters of population known before.
- *Convenience sampling*, that is gathering sample by considering the objective and ease of respondents to be sample. In this research, the sample is 100 respondents with the assumption that it has been more than minimal sample for predicting (30 samples)

## 3.4. Data Analysis Method

### a. Analysis of Double Linear Regression

This kind of analysis tries to relate Y variable and X variable which is more than one.

The equation:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5$$

Where:

Y = Value of consumer's decision to buy

$\beta_0$  = Intercept/constant

$\beta_1, \beta_2, \dots, \beta_5$  = Partial regressive coefficient

X1 = *Tangibles*

X2 = *Reliability*

X3 = *Responsiveness*

X4 = *Assurance*

X5 = *Empathy*

By knowing this smallest quadrate, the value of  $\beta_0, \beta_1, \beta_3, \beta_4, \beta_5$  can be calculated through calculated the following equation:

$$Y = n\beta_0 + \beta_1 \sum X_1 + \beta_2 \sum X_2 + \beta_3 \sum X_3 + \beta_4 \sum X_4 + \beta_5 \sum X_5$$

$$\sum YX_1 = \beta_0 \sum X_1 + \beta_1 \sum X_1^2 + \beta_2 \sum X_1X_2 + \beta_3 \sum X_1X_3 + \beta_4 \sum X_1X_4 + \beta_5 \sum X_1X_5$$

$$\sum YX_2 = \beta_0 \sum X_2 + \beta_1 \sum X_1X_2 + \beta_2 \sum X_2^2 + \beta_3 \sum X_2X_3 + \beta_4 \sum X_2X_4 + \beta_5 \sum X_2X_5$$

$$\sum YX_3 = \beta_0 \sum X_3 + \beta_1 \sum X_1X_3 + \beta_2 \sum X_2X_3 + \beta_3 \sum X_3^2 + \beta_4 \sum X_3X_4 + \beta_5 \sum X_3X_5$$

$$\sum YX_4 = \beta_0 \sum X_4 + \beta_1 \sum X_1X_4 + \beta_2 \sum X_2X_4 + \beta_3 \sum X_3X_4 + \beta_4 \sum X_4^2 + \beta_5 \sum X_4X_5$$

$$\sum YX_5 = \beta_0 \sum X_5 + \beta_1 \sum X_1X_5 + \beta_2 \sum X_2X_5 + \beta_3 \sum X_3X_5 + \beta_4 \sum X_4X_5 + \beta_5 \sum X_5^2$$

b. Analysis of Double Correlation Coefficient

This kind of analysis is used to show the relationship degree between research variables that are generally formulated as follows:

$$r^2 = \beta_1 \sum Y_1 X_1 + \beta_2 \sum Y_2 X_2 + \beta_3 \sum Y_3 X_3 + \beta_4 \sum Y_4 X_4 + \beta_5 \sum Y_5 X_5$$

or:

$$r^2 = \frac{1 - \sum (Y - \hat{Y})^2}{\sum Y^2}$$

c. Jointly Test on Regressive Coefficient

In order to examine whether correlative coefficient is significant or not in a certain degree of conviction as basis to pretend, then it needs a jointly test on regressive coefficient:

$$F_{reg} = \frac{K R_{reg}}{K R_{sim}}$$

Where :

$$K R_{reg} = \frac{JK_{reg}}{dk_{reg}} = \frac{R^2 \sum Y^2}{K}$$

$$K R_{sim} = \frac{JK_{sim}}{dk_{sim}} = \frac{(1 - R^2) \sum Y^2}{n - 1 - k}$$

- If arithmetical f-significant  $< 0,05$  ( = 5%),  $H_0$  is rejected, that there is a significant relationship between X and Y variables.
- If arithmetical f-significant  $> 0,05$  (CL 5%),  $H_0$  is accepted, that there is a significant relationship between X and Y variables.

d. Partial Correlative Analysis

In order to determine the degree of relationship between 2 variables with the assumption that other variables are constant, then the formula of partial correlation for regression with 2 predictors is as follows:

- 1) Partial correlation between tangible-quality dimension and value of consumer's decision to buy where the four other quality dimensions are perceived to be constant.

$$r_{Y1} = \frac{\sum X1Y}{\sum X1^2 \cdot \sum Y^2}$$

- 2) Partial correlation between reliability dimension and value of consumer's decision to buy where other four dimensions are perceived to be constant is outlined as follows:

$$r_{Y2} = \frac{\sum X2Y}{\sum X2^2 \cdot \sum Y^2}$$

- 3) Partial correlation between responsiveness-quality dimension and value of consumer's decision to buy where other four dimensions are perceived to be constant is as follows:

$$r_{Y3} = \frac{\Sigma X_3 Y}{\Sigma X_3^2 \cdot \Sigma Y^2}$$

- 4) Partial correlation between assurance-quality dimension and value of consumer's decision to buy where other four dimensions are perceived to be constant is as follows:

$$r_{Y4} = \frac{\Sigma X_4 Y}{\Sigma X_4^2 \cdot \Sigma Y^2}$$

- 5) Partial correlation between empathy-quality dimension and value of consumer's decision to buy where other four dimensions are perceived to be constant is as follows:

$$r_{Y5} = \frac{\Sigma X_5 Y}{\Sigma X_5^2 \cdot \Sigma Y^2}$$