CHAPTER III

RESEARCH METHOD

3.1. TYPE OF STUDY

The type of study conducted by the researcher is quantitative research. This research uses quantitative method by generating numerical data or data that can be transformed into useable statistics. The researcher using secondary data because it is accessible and more efficient to collect. Secondary data is data that obtained directly from many sources, such as a quote from the books, literature, scientific journal, an article which support to the theme of the research. In this research, the secondary data was obtained through the central bureau of statistics, website (https://www.bps.go.id/) and World Bank, website (https://data.worldbank.org/).

Data used in this research are:

a. Poverty population of Java in Indonesia by districts 2010 – 2016
b. Human Development Index or HDI of Java in Indonesia by districts 2010 – 2016
c. Gross Regional Domestic Product or GRDP of Java in Indonesia by districts 2010 – 2016
d. Inflation of Java in Indonesia by districts 2010 – 2016

e. Unemployment population of Java in Indonesia by districts 2010 – 2016

3.2. Data Collection Method

Method of collecting data is the study of the literature. The step to gain the data are finding and analyzing from literature books and processed data. The collection of data in this study are planned to collect related and accurate materials. The data used secondary data by using a data collection method from internet sources from the BPS and World Bank.

1.3 Research Variable

This research contains independent variable and dependent variable. The dependent variable in this research is Poverty population of Java consists of DKI Jakarta, Daerah Istimewa Yogyakarta, Banten, East Java, West Java and South Java. Independent variables in this research are Human Development Index (HDI), Gross Regional Domestic Product (GRDP), Inflation, and Unemployment population.

1.3.1 Dependent Variable

The dependent variable is a variable which is influences by other variable. This study used the poverty population as a dependent variable. Poverty population is the total of poverty population in Java in Indonesia which recorded by central bureau of statistics or BPS.

3.3.2 Independent Variable

Independent variable is the variables that can affect or influence other variables. Independent variables used in this study are:

a. Human Development Index or HDI (X1)

   Human Development Index is a quality human development measurement. It helps in increasing the quality of society by several measurements such as long life index, education index, and descent life index

b. Gross Regional Domestic Product or GDRP (X2)

   As the measurement of economic growth in a region or province, GRDP has an important role in reducing poverty.

c. Inflation (%) (X3)

   Inflation as the barometer tool to measure economy health rate. If the inflation is too high, it will decrease the social welfare of society. If the inflation is too low, it reflects the economy does not run maximally.

d. Unemployment population (X4)

   Unemployment population has a close relation with poverty because it was a factor of the increasing of the poverty population

1.4 Analysis Technique

The processing of secondary data is using Microsoft Excel 2013 and Eviews 9.0. In processing the data, the researcher used Microsoft Excel 2013 to create the tables and to analysis the data. While using Eviews 9.0 to the processing of the regression data panel.

1.4.1 Panel Data Method

Panel data regression is a combination of cross section data and time series data, which same cross section unit are measured in different time (Ekananda, 2015). The use of panel data allows a researcher to be able to capture the characteristic between individual and between different times. The reasons for using panel data than other data are:

1. By combining data, panel data gives more data variation, less collinearity and more degrees of freedom that are resulting better estimation
2. Provide more data and complete information
3. Better in detecting and measuring the effect which cannot be observed by using cross-section or time series data

According to Gujarati and Porter (2012) in Rahmah (n.d.) data panel regression has three estimation models, namely Fixed Effect Model (Least Square Dummy Variable), Random Effect Model and Polled Regression Common Effect Model.

1.4.2 Selection Panel Data Estimation Model

a. Chow test

The aim of Chow test is to choose whether data regression technique panel with a fixed effect regression model of panel data without a dummy variable and to see the residual sum of squares. If the statistic value greater than the significance level, reject a null hypotheses. Then, the data is better using a fixed effect model than common effect model.

H_0: Choose Common Effect

H_1: Choose Fixed Effect

b. Hausman test

The aim of Hausman test is the test to choose whether Fixed Effect or Random Effect is the best estimation. Null hypotheses is rejected, if the value of the Hausman statistic is greater than the critical value. Otherwise, a null hypotheses is accepted Hausman statistic is greater than the critical value.

H_0: Choose Random Effect

H_1: Choose Fixed Effect

1.4.3 Classical Assumption Test

Before conducting data analyze, the data should be tested by classical assumption test. If there is a problem on a classical assumption, non-parametric statistical testing should be conducted. Classical assumption test

is needed depends on the results of the estimation method selection. In estimate model estimation for Random Effect model using GLS or Generalized Least Square, while estimate model for Fixed Effect Model and Common Effect model using OLS or Ordinary Least Square. Classical assumption is suit for Common Effect Model or Fixed Effect Model than Random Effect Model.

Rahmah (n.d.) was agreed with Gujarati and Porter (2012) that the collinearty between each variable is less, thus the existence of multicollinearity have small possibility. Therefore, the classical assumption test that will be use are heteroscedasticity test and autocorellation test.

a. Heteroscedasticity test

Heteroscedasticity test analyze is there any inequality variance of the residual's observation to another observation. Heteroscedasticity problem can be done by using Glejser test. The hypothesesheteroscedasticity are:

H_0: There is no heteroscedasticity

H_1: There is heteroscedasticity

If the p-value of the probability is greater than α, accept H_0 which means free from heteroscedasticity. If the p-value less than α, reject H_0 which means there is heteroscedasticity.

b. Autocorrelation test

Autocorrelation is a condition when there is a correlation or relationship between each residual in time series or cross section. This test wants to find out whether there is a correlation between each residual. In determining the autocorrelation, Durbin-Watson test can be the alternative test. There is some autocorrelation decision in Durbin-Watson test:

a. If dw< dl, suffer positive autocorrelation
b. If dw> (4-dl), suffer negative autocorrelation
c. If du <dw< (4-dl), there is no autocorrelation

1.4.4 Hypotheses Testing

Hypotheses testing are useful for testing whether the regression coefficient achieved significant or not. The intent of this significant is a regression coefficient value which is not significantly equal to zero. If the coefficient is equal to zero, the evidence to state the independent variables had the effect on the dependent variable was not enough. Thus, all the regression coefficient should be tested.

1. T-test

T-test is an individual coefficient test. This test used to know the effect of each significance of independent variables.

Hypotheses in T-test are:

$H_0 : \beta i = 0$

$H_1 : \beta i \neq 0$

If the probability t value < $\alpha = 0.05$ so reject H0, means independent variable partially significance influenced dependent variable.

2. Coefficient Determinants (R^2)

A coefficient determination is an important measurement in the regression, because it determines whether the regression model estimation is good. The value of R^2 reflects the extent of the variation of the dependent that can be explained by the independent variables X or how large diversity of the dependent variables that are able to be explained by the model.

If $R^2 = 0$, the variation of the Y cannot be explained by X overall

If$R^2 = 1$, a variation of Y can be described by the X.

3. F-test

F-test is used to perform a test of the hypotheses of the regression coefficient at the same time. F-test shows independent variables affect the dependent variable at the same time.

The hypotheses in F-test are:

$H_0 : \beta_1 = \beta_2 = \ldots = 0$

$H_1 : \beta_1 \neq \beta_2 \neq \ldots = 0$

It F-test is greater than F critical H_0 is rejected. Rejected H_0 means there is at least one independent variable that influenced the dependent variable.

1.4.5 Model

The influence of independent variables to dependent variables systematically can be described in the following formula:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + e_{it}$$

Where:

Y	: Poverty Population
X_1, X_2, X_3, X_4	: Human Development Index (X_1), Gross Regional Domestic Product (X_2), Inflation (X_3), Unemployment Population (X_4)
β_0	: Constanta
$\beta_1, \beta_2, \ldots, \beta_n$	: The magnitude of the influence of independent variable toward the dependent variables
i	: Java
t	: Series 2010 – 2016

e_{it} : error term