

CHAPTER IV

RESEARCH METHOD

1.1. Type of Research

Based on the objectives of this study which are trying to find empirical evidence in examining correlation between governance quality, tax holiday, FDI and Economic Growth, the quantitative research method is applied to achieve the research objectives. This research employ descriptive statistic and calculation which involve multiple linear regressions and simple linear regression to determine the effects of governance quality and tax holiday on foreign direct investment and economic growth. According to Creswell (2014), Quantitative research is an approach for testing objective theories by examining the relationship among variables which can be measured, typically on instruments, so that numbered data can be analyzed using statistical procedures. Quantitative analysis objective is to explaining the theory by using numerical data and analyze it using mathematical, statistical method, and computation.

Quantitative research using a variable which refers to a characteristic or attribute of an individual or an organization that can be measured or observed and that varies among the people or organization being studied (Creswell, 2014). Creswell also explain some types of variable on his book, namely:

- a) Independent variables, those that (probably) cause, influence, or affect outcomes. They are also called treatment, manipulated, antecedent, or predictor variables.
- b) Dependent variables, those that depend on the independent variables; they are the outcomes or results of the influence of the independent variables.

Other name for dependent variables are criterion, outcome, effect, and response variables.

- c) Intervening or mediating variables stand between the independent and dependent variables, and they mediate the effects of the independent variable on the dependent variable.
- d) Moderating variables, it is an independent variables that affect the direction and/or the strength of the relationship between independent and dependent variables.
- e) Control variables, a special type of independent variable that researchers measure because they potentially influence the dependent variable.
- f) Confounding (spurious) variables, is not actually measured or observed in a study. It exists but its influence cannot be directly detected.

Due to the research problem and objectives, this research looking for the relationships between independent variables and dependent variables. Further, this research employ nine variables as follows:

- a) Two independent variable; Governance Quality (Gov) and Tax Holiday (TH). Governance quality consist of six indicators: Voice and Accountability (VA), Political Stability and Absence of Violence/Terrorism (PV), Government Effectiveness (GE), Regulatory Quality (RQ), Rule of Law (RL), Control of Corruption (CC).
Meanwhile, tax holiday consist of two indicators: Tax Holiday and No Tax Holiday.
- b) Two dependent variables; Foreign Direct Investment (FDI), and Economic Growth which represented by Gross Domestic Product (GDP).

In the context of governance quality and tax holiday effect on economic growth, FDI is an intervening variable or mediating variable which is located between governance quality and tax holiday (independent variables) and economic growth (dependent variable).

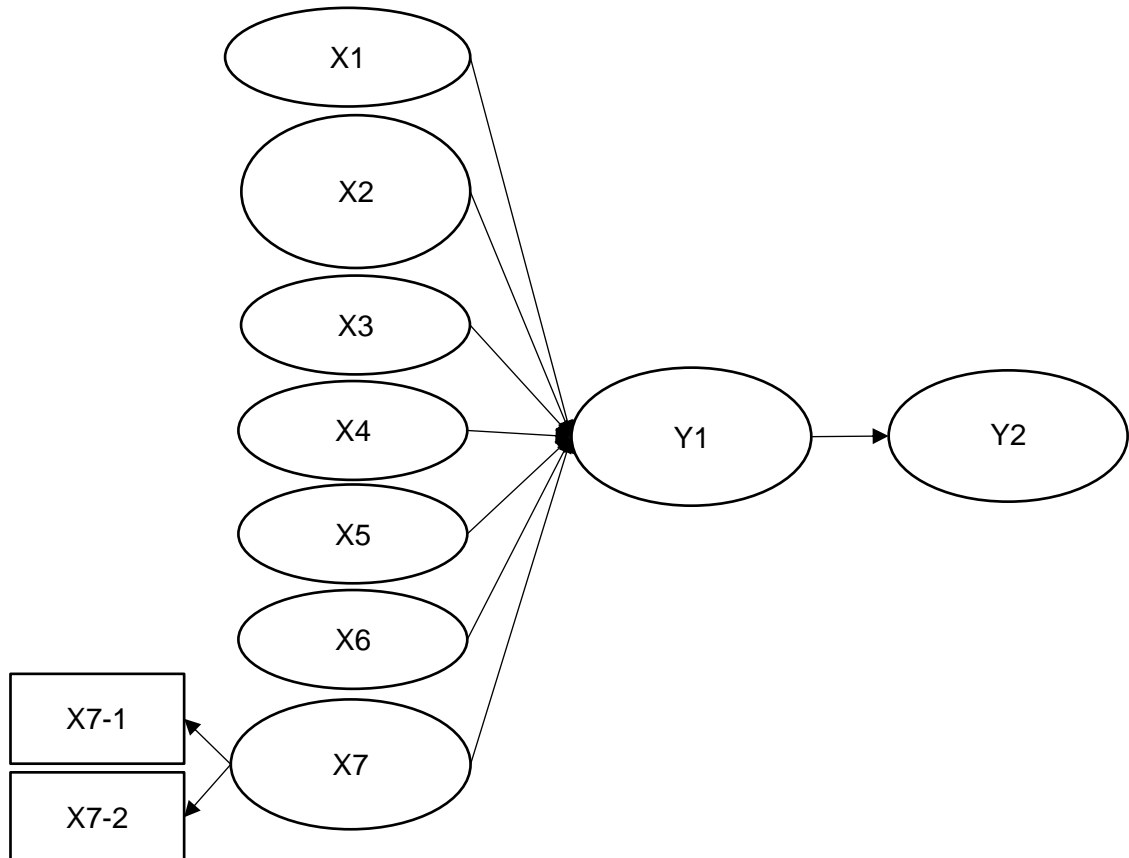
Table 4.1 below summarize the variables used in this research:

Table 4.1 Definition of Variables

Variable Symbol	Definition	Unit of Measurement	Data Source
VA (X1)	Governance Indicator for Voice & Accountability	Ordinal Scales	World Bank
PV (X2)	Governance Indicator for Political Stability and absence of violence/Terrorism	Ordinal Scales	World Bank
GE (X3)	Governance Indicator for Government Effectiveness	Ordinal Scales	World Bank
RQ (X4)	Governance Indicator for Regulatory Quality	Ordinal Scales	World Bank
RL (X5)	Governance Indicator for Rule of Law	Ordinal Scales	World Bank
CC (X6)	Governance Indicator for Control of Corruption	Ordinal Scales	World Bank
TH (X7)	Tax Holiday, Incentive for new corporate in form of CIT exemption for a certain time. - TH = 1; There is Tax holiday (X7-1) - TH = 0; There is no Tax Holiday (X7-2)	Nominal Scales	Minister of Finance Regulation No. 130/PMK.011/2011
FDI (Y1)	Foreign Direct Investment, international capital inflow	Ratio Scales	Indonesian Central Board of Statistics (BPS)
GDP (Y2)	Economic Growth which represented by Gross Domestic Product	Ratio Scales	Indonesian Central Board of Statistics (BPS)

Source: Author summary

Below is the variable model of this research using the variable symbol.



Source: Author summary

Figure 4.1 Variable Model

1.2. Unit of Analysis

Defining a unit of analysis is the first step when decide how to analyze the data. Trochim (2006)¹ explain that unit of analysis is the “who” or the “what” has been analyzed on the study, moreover, depends on the major entity that has been analyzed on the research there are some type unit of analysis such as individuals,

¹ Cited from <http://www.socialresearchmethods.net/kb/unitanal.php>, accessed on May 2016.

groups, geographical units, social artifacts, and social interactions. On this research, Indonesian economic growth at national level is the unit of analysis.

1.3. Data Analysis

This research employ traditional econometric methodology, where econometric can be defined as the quantitative analysis of actual economic phenomena based on the concurrent development of theory and observation (Samuelson, et al 1954 cited by Gujarati, 2003). Moreover, according to Gujarati (2003) in traditional econometric methodology there are several step as follows:

- 1) Statement of theory or hypothesis;
- 2) Specification of the mathematical model of the theory;
- 3) Specification of the statistical, or econometric, model;
- 4) Obtaining the data;
- 5) Estimation of the parameters of the econometric model;
- 6) Hypothesis testing; and
- 7) Forecasting or prediction.

The method conducted on this research is Ordinary Least Square (OLS), it is a multiple linear regression analysis which use more than one independent variable, while simple linear regression analysis is employed to analysis effect of one independent variable only. Due to Gujarati (2003), the method of least square has some very attractive statistical properties that have made it one of the most powerful and popular methods of regression analysis. Furthermore, regression analysis is concerned with the study of the dependency of one variable (the dependent variable) on one or more other variables (the explanatory variables or

independent variable) with a view to estimating and or predicting the mean or average value of the former in terms of the known or fixed values of the latter.

To ease statistical calculation, the regression analysis tools or statistical software is employed in data analysis. The statistic software used on this research is IBM SPSS ver. 23. In addition, literature study or library research also conducted on this research to help analyzed the data and explain the result in narrative description.

1.4. Data Collecting Method

This research analyzed the secondary data and information which is collected from some related institution, namely, Indonesian Central Board of Statistics (BPS), Investment Coordination Board (BKPM), World Bank, and other reliable sources. The data is a time series data and collected over a period of time from year 2001 until 2014. In statistical analysis it is better to use the data on the same time frame, therefore the data employed are limits for a certain year due to availability of the information for all variables.

1.5. Mathematical Model

To answer the research question, this research formulate two mathematical model as follow:

$$\text{Ln FDI}_t = \beta_0 + \beta_1 \text{VA}_t + \beta_2 \text{PV}_t + \beta_3 \text{GE}_t + \beta_4 \text{RQ}_t + \beta_5 \text{RL}_t + \beta_6 \text{CC}_t + \beta_7 \text{TH}_t + \varepsilon_t$$

$$\text{Ln GDP} = \beta_0 + \beta_1 \text{Ln FDI}_t + \varepsilon_t$$

Where:

β_0 : Constant

β_n : Coefficient to be estimated

FDI : Foreign Direct Investment year t

GDP : Gross Domestic Product year t

VA : Indicator Voice and Accountability year t

PV : Indicator Political Stability and Absence of Violence/Terrorism year t

GE : Indicator Government Effectiveness year t

RQ : Indicator Regulatory Quality year t

RL : Indicator Rule of Law year t

CC : Indicator Index of Control of Corruption year t

TH : Tax Holiday (Dummy Variable)

ε : Error

FDI is a dependent variable and the rest (VA, PV, GE, RQ, RL, CC, TH) is an independent variable where can explain the movement of dependent variable. GDP is gross domestic product at constant price, it is the dependent variable, and the independent variable is FDI. β_n is the coefficient number of each independent variable. If independent variable coefficient showing a positive number, it means the independent variable has positive effect to dependent or the value of dependent variable will increase, vice versa, if the coefficient is negative then it has negative effect to dependent variable or the value of dependent variable will decrease. Meanwhile, β_0 means constant, if the other independent variable showing zero (0) value, then the dependent variable will has value at constant value.

1.6. Data Testing

According to Gujarati (2003), there is a test conducted to determine the variables employed is right and the model is relevant, namely statistical test.

Statistical test is employed to know the interaction of independent variables on dependent variable. Since the type of data is ordinal data, to test the data it can using the partial test (t-test), simultaneous test (F-test), and coefficient of determination (R^2).

4.6.1 Coefficient of Determination (R^2)

Coefficient of determination is the proportion of independent variable contribute to the dependent variable. It measure the ability of the model to explain variations in the dependent variable. Coefficient of determination has value between 0 and 1 ($0 < R^2 < 1$). If the R-square value is closer to 1 then it means the independent variables portion to explain the dependent variable is bigger. In other words, the higher the coefficient of determination is close to 1, the more there is a better correlation in the model, and vice versa.

Meanwhile, the rest ($1 - R^2$) is the portion of another variables outside the model explaining the dependent variable. Every adding one independent variable to model, R-square must be increasing too, does not matter the variable has significant effect or not to the dependent variable. Besides R-square, this research also use adjusted R-square to evaluate the model. Different from R-square, adjusted R-square value can going up and down if one independent variable added to the model.

4.6.2 Simultaneous Test (F-Test)

F-test or Anova test has aims to look how significant the effect of all independent variables (simultaneous / overall) toward dependent variable. Another function of F-test is to test the regression model, is it good (significant) or not

significant and can be used for the regression or not. F-test is conducted in following steps:

a) Formulate the hypotheses;

H_0 = effect of all independent variables simultaneously is not significant to dependent variable.

H_a = effect of all independent variables simultaneously is significant to dependent variable.

b) Calculate the F-count;

c) Compare the F-count with F table to decide the hypotheses accepted or not.

The condition is :

F-count > F-table, then H_0 accepted.

F-count < F-table, then H_0 not accepted.

Moreover, another method to conduct the F-test is by comparing the significant (p -value). For instance the significant value set at 5%, if the probability value < α (0.05) then H_0 rejected or H_a accepted, it means the independent variable simultaneously has significant effect to the dependent variable. Vice versa if the probability value > α (0.05), then H_0 accepted or H_a rejected, it means the independent variable simultaneously has effect to dependent variable but not significant.

4.6.3 Partial test (t-Test)

t-Test or partial test is a procedure to test the significant effect of each independent variable on dependent variable. This t-Test is conducted in following steps:

a) Formulate the hypotheses;

H_0 = independent variable effect is not significant to dependent variable.

H_a = independent variable effect is significant to dependent variable.

- b) Calculate the t-count;
- c) Compare the t-count with t table to decide the hypotheses accepted or not.

The condition is:

t-count > t-table, then H_0 accepted.

t-count < t-table, then H_0 not accepted.

Moreover, another method to conduct t-test is by comparing the significant (p-value). For instance the significant value set at 5%, if the probability value < α (0.05) then H_0 rejected or H_a accepted, it means the independent variable has significant effect to the dependent variable. Vice versa if the probability value > α (0.05), then H_0 accepted or H_a rejected, it means the independent variable has effect to dependent variable but not significant.