CHAPTER IV

DATA ANALYSIS AND DISCUSSIONS

4.1 The Description Of Java Provinces

Java Island is the fourth largest island in Indonesia but most of Indonesian populations are stay there. Java Island consists of four administrative provinces, West Java, East Java, Central Java and Banten, and two special regions DKI Jakarta and DI Yogyakarta. Java Island becomes the center of business, economics and politics of Indonesia, because Jakarta as the capital city of Indonesia is in Java Island.

Nevertheless, Java Island is recorded as the contributor of poor people in Indonesia. It happens because Java Island becomes the most crowded island in Indonesia. Most unemployment migrates to Java to get a better job with a proper wage. Although Java has dominated the poor people, Java also becomes the highest Human Development Index and Gross Regional Domestic Product Island in Indonesia as the same time.

4.1.1 THE DESCRIPTION STATISTICS OF RESEARCH DATA

TABLE 4.1.THE DESCRIPTIVE STATISTIC OF RESEARCH DATA IN JAVA PROVINCES IN 2010-2016

PROVINCES		POVERTY	HDI	GRDP	INF	UNEMP
EAST JAVA	MEAN	4,982.11	67.51	31,111.67	5.27	882,301.57
	STANDARD DEVIATION	333.79	1.57	3,457.36	2.13	79,519.69
WEST JAVA	MEAN	4,445.60	68.11	23,977.10	5.12	1,867,095.29
	STANDARD DEVIATION	213.98	1.46	2,123.73	2.63	64,387.97
CENTRAL JAVA	MEAN	4,705.36	68.03	21,961.51	5.10	992,548.14
	STANDARD DEVIATION	443.78	1.47	2,070.36	1.31	131,933.59
DKI JAKARTA	MEAN	369.34	77.98	130,328.29	4.57	464,786.43
	STANDARD DEVIATION	30.30	1.14	13,719.68	1.43	106,260.94
BANTEN	MEAN	682.46	69.32	28,716.30	5.79	560,596.14
	STANDARD DEVIATION	38.19	1.19	2,302.63	3.03	103,982.94
DIY	MEAN	535.06	76.67	21,054.94	4.22	76,701.43
	STANDARD DEVIATION	35.99	1.03	1,776.94	2.69	16,616.83

Source: Badan Pusat Statistik and Word Bank

Based on table 4.1 above, it shows 7 years data of poverty population, human development index, inflation rate, gross regional domestic product and unemployment population in thousands in Java.

The highest poverty population mean is on East java with 4,982.11 thousand people with standard deviation on 333.79. The standard deviation is less than the mean, it can be conclude a fairly good data distribution. While the lowest poverty population mean is on DKI Jakarta with 369.34 thousand people with standard deviation on 30.30. The standard deviation is less than the mean, it identified a fairly good data distribution.

DKI Jakarta has the highest human development index mean with 77.98 point, while the standard deviation is on 1.14. The standard deviation is less than the mean, it identified a fairly good data distribution. Meanwhile, East Java has the lowest human development index mean with 67.51, while the standard deviation is on 1.57. The standard deviation is less than the mean, it can be conclude a fairly good data distribution.

The highest Gross Regional Domestic Product per capita mean is from DKI Jakarta with 130.328.29 rupiah and standard deviation is on 13.719.68, while the lowest Gross Regional Domestic Product per capita mean is from DIY with 21.054.94 rupiah and standard deviation is on 1.776.94. Both standard deviations are less than the mean, it identified a fairly good data distribution.

DIY has the lowest inflation rate with 4.22%, while the standard deviation is on 2.69. Meanwhile, Banten has the highest inflation rate with

5.79, while the standard deviation is on 3.03. Both standard deviations are less than the mean, it identified a fairly good data distribution.

The highest unemployment population mean is from West Java with 1.867.095.29 people, with standard deviation is on 64.387.97. While the lowest unemployment population mean is from DIY with 76.701.43 people, with standard deviation is on 16.616.83. Both standard deviations are less than the mean, it identified a fairly good data distribution.

4.2 Panel Data Result

Panel data regression has three standard estimation models, i.e. Common Effect Model, Fixed Effect Model and Random Effect Model. The result of panel data calculation using Eviews 9 is concluding as follow.

4.2.1 Common Effect Result

This model is the simplest panel data approach model, because this model only combines the *time series* data and *cross section*, then this combination data will estimate the model by Ordinary Least Squares or OLS. In Common Effect Model, the time dimension or individual dimension are not really considered, thus the behavior of the variable are same in different time.

TABLE 4.2.COMMON EFFECT

Dependent Variable: POV

Method: Panel Least Squares

Date: 11/02/18 Time: 17:12

Sample: 2010 2016

Periods included: 7

Cross-sections included: 6

Total panel (balanced) observations: 42

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	20973.68	5777.207	3.630419	0.0009
HDI	-266.1986	77.70111	-3.425931	0.0015
GRDP	-0.000140	0.006493	-0.021585	0.9829
INF	-94.76741	89.16539	-1.062827	0.2947
UNEMP	0.001361	0.000475	2.863304	0.0069
R-squared	0.714293	Mean dependent var		2619.989
Adjusted R-squared	0.683406	S.D. dependent var		2136.445
S.E. of regression	1202.107	Akaike info criterion		17.13288
Sum squared resid	53467247	Schwarz criterion		17.33975
Log likelihood	-354.7905	Hannan-Quinn criter.		17.20871

F-statistic	23.12585	Durbin-Watson stat	0.071681
Prob(F-statistic)	0.000000		

Source: Eviews 9

4.2.2 Fixed Effect Result

This model assumes the differences each individual can accommodate from a different intercept. To estimate panel data with fixed effect model is using a dummy variable technique to catch the differences from each variable. This model estimation also is known as Least Squares Dummy Variable (LSDV) technique.

TABLE 4.3.FIXED EFFECT

Dependent Variable: POV

Method: Panel Least Squares

Date: 11/02/18 Time: 22:45

Sample: 2010 2016

Periods included: 7

Cross-sections included: 6

Total panel (balanced) observations: 42

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	15661.11	2329.516	6.722902	0.0000

HDI	-192.0823	30.54794	-6.287898	0.0000
GRDP	0.016691	0.006042	2.762583	0.0094
INF	-17.74241	12.35036	-1.436591	0.1605
UNEMP	2.72E-05	0.000417	0.065240	0.9484
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.995955	Mean dependent var		2619.989
Adjusted R-squared	0.994817	S.D. dependent var		2136.445
S.E. of regression	153.8105	Akaike info criterion		13.11358
Sum squared resid	757045.2	Schwarz criterion		13.52731
Log likelihood	-265.3851	Hannan-Quinn criter.		13.26522
F-statistic	875.3717	Durbin-Watson stat		1.184186
Prob(F-statistic)	0.000000			

Source: Eviews 9

4.2.3 Random Effect Result

This model estimates the panel data which error term may have a relation in each time and each individual. In Random Effect Model the intercept differences are accommodated by an error term in each variable. The advantage of using this model is eliminating the heteroscedasticity. This

model is also known as Error Component Model (ECM) or Generalized Least Square (GLS) technique

TABLE 4.4.RANDOM EFFECT

Dependent Variable: POV

Method: Panel EGLS (Cross-section random effects)

Date: 11/02/18 Time: 22:47

Sample: 2010 2016

Periods included: 7

Cross-sections included: 6

Total panel (balanced) observations: 42

Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	15180.82	1604.226	9.463018	0.0000
HDI	-189.0007	21.73796	-8.694499	0.0000
GRDP	-0.000623	0.002243	-0.277587	0.7829
INF	-31.59522	11.72130	-2.695540	0.0105
UNEMP	0.001355	0.000163	8.294928	0.0000

Effects Specification

	S.D.	Rho

Cross-section random		172.1284	0.5560
Idiosyncratic random		153.8105	0.4440
Weighted Statistics			
R-squared	0.625552	Mean dependent var	838.3547
Adjusted R-squared	0.585071	S.D. dependent var	717.1820
S.E. of regression	461.9728	Sum squared resid	7896499.
F-statistic	15.45301	Durbin-Watson stat	0.216681
Prob(F-statistic)	0.000000		
Unweighted Statistics			
R-squared	0.689852	Mean dependent var	2619.989
Sum squared resid	58041209	Durbin-Watson stat	0.029479

Source: Eviews 9

4.2.4 Chow Test and Hausman Test

In estimating the best model for this research, the researcher uses two kinds of test, they are Chow test and Hausman test. Chow test is used to choose the best model between common effect model and fixed effect model, while Hausman test is used to choose whether fixed effect model or random effect model is the best model. The result of Chow test and Hausman test calculation using Eviews 9 are concluded as follow.

TABLE 4.5.CHOW TEST

Redundant Fixed Effects Tests			
Equation: FIXED			
Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	445.607882	(5,32)	0.0000
Cross-section Chi-square	178.810868	5	0.0000

Source: Eviews 9

The result of Chow test shows the probability value of Chi-square is 0.0000 or smaller than $\alpha = 0.05$, it means reject H_0. If H_0 is rejected, thus the researcher should choose Fixed Effect Model, because it is better than Common Effect Model.

TABLE 4.6.HAUSMAN TEST

Correlated Random Effects - Hausman Test			
Equation: RANDOM			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.

Cross-section random	300.781872	4	0.0000

Source: Eviews9

From the result above, the probability of Cross-section random is 0.0000, which smaller than $\alpha = 0.05$. Thus, the researcher rejects H_0 then choose Fixed Effect Model as the best model rather than Random Effect Model. From three test that already conducts, the best model being used is Fixed Effect Model.

4.2.5 Classical Assumption Test

In classical assumption testing there are three tests namely heteroscedasticity test and autocorrelation test.

TABLE 4.7. HETEROSCEDASTICITY TEST – GLEJSER TEST

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6755.599	3096.101	2.181970	0.0366
HDI	-77.57529	41.11502	-1.886787	0.0683
GRDP	-0.001495	0.008484	-0.176208	0.8612
INF	-43.60097	24.25461	-1.797637	0.0817
UNEMP	-5.94E-05	0.000928	-0.064043	0.9493

Source: Eviews 9

Heteroscedasticity hypotheses is H_0, if the p-value is greater than $\alpha = 0.05$ which means there is no heteroscedasticity, while H_1, if the p-value is less than

α = 0.05, which means suffer the heteroscedasticity. According to table 4.7, all of the independent variables p-value are greater than α = 0.05. It can be concluded that HDI, GRDP, Inflation and Unemployment variable are free from heteroscedasticity problem.

TABLE 4.8. AUTOCORRELATION TEST – DURBIN WATSON TEST

R-squared	0.714293	Mean dependent var	2619.989
Adjusted R-squared	0.683406	S.D. dependent var	2136.445
S.E. of regression	1202.107	Akaike info criterion	17.13288
Sum squared resid	53467247	Schwarz criterion	17.33975
Log likelihood	-354.7905	Hannan-Quinn criter.	17.20871
F-statistic	23.12585	Durbin-Watson stat	0.071681
Prob(F-statistic)	0.000000		

Source: Eviews 9

Table 4.8 shows the Durbin-Watson stat or dw is 0.071681. From Durbin-Watson table, du=1.7202 and dl=1.3064. Also calculate 4-du= 2.2798 and 4-dl= 2.6936. The autocorrelation decision are:

a. dw< dl

   0.0716 < 1.3064

   Suffer from positive autocorrelation

b. dw> (4-dl)

0.0716 < 2.6936

Does not suffer from negative autocorrelation

From the result above, first autocorrelation result suffers from positive autocorrelation. The problem of autocorrelation can be solved by using Cross-section SUR model.

TABLE 4.9. AUTOCORRELATION TEST – DURBIN WATSON TEST (CROSS-SECTION SUR MODEL)

Dependent Variable: POV

Method: Panel EGLS (Cross-section SUR)

Date: 11/03/18 Time: 01:41

Sample: 2010 2016

Periods included: 7

Cross-sections included: 6

Total panel (balanced) observations: 42

Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	20956.65	547.1073	38.30446	0.0000
HDI	-266.3495	7.282155	-36.57564	0.0000

GRDP	0.000413	0.001104	0.373927	0.7106
INF	-84.32639	9.513518	-8.863849	0.0000
UNEMP	0.001354	2.78E-05	48.75444	0.0000
	Weighted Statistics			
R-squared	0.989634	Mean dependent var		1.473436
Adjusted R-squared	0.988513	S.D. dependent var		11.27122
S.E. of regression	1.045000	Sum squared resid		40.40495
F-statistic	883.0940	Durbin-Watson stat		2.022048
Prob(F-statistic)	0.000000			
	Unweighted Statistics			
R-squared	0.713678	Mean dependent var		2619.989
Sum squared resid	53582317	Durbin-Watson stat		0.062703

Source: Eviews 9

Table 4.9 shows the Durbin-Watson stat or dw is 2.022048. From Durbin-Watson table, du=1.7202 and dl=1.3064. Also calculate 4-du= 2.2798 and 4-dl= 2.6936. The autocorrelation decision are:

a. dw< dl

   2.022048 > 1.3064

   Does not from positive autocorrelation

b. dw> (4-dl)

2.022048 < 2.6936

Does not suffer from negative autocorrelation

c. du <dw< (4-dl)

1.7202 < 2.022048 < 2.6936

There is no autocorrelation

From the second autocorrelation test, the result shows there is no autocorrelation in regression model.

4.3 Hypotheses Testing

Based on regression of Common Effect, Fixed Effect, and Random Effect result, the researcher chose the Fixed Effect Model as the most suitable model for this research. After through the classical assumption test (heteroscedasticity test and autocorrelation test), the result shows at first autocorrelation test is suffer from positive autocorrelation but in second autocorrelation test using cross-section SUR model, there is no autocorrelation. The last autocorrelation result becomes a suitable model to analyze this research. The hypotheses testing of Autocorrelation result can be seen below.

4.3.1 T-Test

This test result can be seen by comparing the t-test and t-critical or the value of probability $t < \alpha = 0.05$ then reject H_0. H_0 is the respective

coefficient of the equation, that is zero or $\beta i = 0$, which means there is no influence of independent variable toward dependent variable. The alternative hypotheses or H_1 is $\beta i \neq 0$, which means there is influence from the independent variable toward dependent variable. Thus, if H_0 will be rejected, independent variable partially significant affect the dependent variable.

H_0: the independent variable partially has no effect toward the dependent variable

H_1: independent variable partially has an effect toward dependent variable

From table 4.9 (autocorrelation test result), it shows the t-test result. If the value of T-statistic in Prob. is smaller than $\alpha = 0.05$, the independent variable affects significantly to the dependent variable. Meanwhile, the value of the Prob. t statistic is greater than $\alpha = 0.05$, independent variable do not affect significantly to the dependent variable.

The conclusion of t-test result is:

a. Human Development Index

   H_0: $\beta 1 \geq 0$

   H_1: $\beta 1 < 0$

Human Development Index (X1) has the probability result 0.0000 or less than $\alpha = 0.05$. It can be concluded will reject H_0, which means Human Development Index has significant effect or Human Development Index significantly had influence toward poverty population in Java 2010-2016.

b. Gross Regional Domestic Product

$H_0: \beta 1 \geq 0$

$H_1: \beta 1 < 0$

Gross Regional Domestic Product (X2) has the probability result 0.7106 or greater than $\alpha = 0.05$. It can be concluded do not reject H_0, which means Gross Regional Domestic Product has no significant effect or Gross Regional Domestic Product does not significantly influence toward Poverty population in Java 2010-2016

c. Inflation

$H_0: \beta 1 \geq 0$

$H_1: \beta 1 < 0$

Inflation (X3) has the probability result 0.0000 or smaller than $\alpha = 0.05$. It can be concluded that it will reject H_0, which means inflation has a significant effect or inflation has

significantly influenced the poverty population in Java 2010-2016.

d. Unemployment

H_0: $\beta 1 \geq 0$

H_1: $\beta 1 < 0$

Unemployment (X4) has the probability result 0.0000 or less than $\alpha = 0.05$. It can conclude it will reject H_0, which means unemployment has significant effect or unemployment has significantly influenced the poverty population in Java 2010-2016.

4.3.2 Coefficient Determination R^2

Coefficient determination (R^2) result is to see the level of fitness of estimation model that is formed. In table 4.9 (autocorrelation test result), it shows the value of R^2 is 0.989634. This result means variable Poverty is explained by variable Human Development Index (X1), Gross Regional Domestic Product (X2), Inflation (X3) and Unemployment (X4) by 98.96% and the residual 1.04% described by the other variables outside the model.

4.3.3 F-Test

F-test used to prove whether the influence of all independent variables together against the dependent variable. The result of probability of f-test is

0.000000 in α 0.05, which means reject H_0. It can be conclude that the Human Development Index, Gross Regional Domestic Product, Inflation and Unemployment are all together have significant effect toward the Poverty population in Java 2010-2016.

Therefore, it can be conclude the result of regression equation model are as follows:

$$POV_{it} = 20956.65 - 266.3495HDI_{it} + 0.000413GRDP_{it} - 84.32639INF_{it} + 0.001354UNEMP_{it} + e_{it}$$

POV : Poverty Population

HDI : Human Development Index

GRDP : Gross Regional Domestic Product

INF : Inflation

UNEMP : Unemployment

i : Java

t : Series 2010-2016

e_{it} : Error term

4.4 Discussion

a. HUMAN DEVELOPMENT INDEX or HDI

According to regression data panel model, the probability of human development index is 0.0000 which smaller than $\alpha = 0.05$, thus human development index is significantly affecting the poverty population in Java. In regression estimation panel data model, it gain the human development index coefficient is -266.3495. It means, increasing 1 point of human development index will reduce 266.3 thousand poor people in Java. Thus, human development index and poverty population in Java had negative significant relationship.

This result support by first hypotheses that assume human development index have negative relationship with poverty population, because when the human development index of Java is increase, many people will get a job easily than before. It will decrease the number of unemployment and increase the economic growth. At the end, the conditions will drive to the decreasing of poverty population in Java.

b. GROSS REGIONAL DOMESTIC PRODUCT

The panel data regression showed the gross regional domestic product had no impact to poverty population in Java with p-value is 0.7106 which greater than $\alpha = 0.05$. It means, gross regional domestic product do not significantly affect the poverty population.

This condition happen because of the inequality existences or uneven distribution of GRDP itself. The welfare only enjoyed by some society in Java, but not all of society in region of Java. Thus, poverty in Java not reduce yet.

c. INFLATION

According to regression data result, p-value of inflation is 0.0000 which smaller than $\alpha = 0.05$. Thus, inflation had significant effect toward poverty population in Java. The regression estimation panel data model also obtained the coefficient of inflation is -84.32639, which means the increasing of inflation by 1 percent will reduce the poverty population by 84,3 thousand poor people in Java. In short, inflation and poverty population in java had significant and negative relationship.

The result above have different result with the hypotheses which is inflation has positive relationship with poverty. But this result had supported by Mustamin et al. (2015) research entitled *"Pengaruh Variabel Ekonomi Makro Terhadap Kemiskinan di Kota Makassar Provinsi Sulawesi Selatan"*. In this research stated the reason why inflation had negative relationship with poverty. First reason is, the fluctuation of inflation rate in Makassar will not influence the reducing of poverty population. The other reason is the differentiation of purchasing power of some society or heterogenic.

d. UNEMPLOYMENT

Based on regression data panel model, the probability of unemployment is 0.0000, less than $\alpha = 0.05$, then unemployment is significantly affecting the number of poverty population in Java. In addition, the regression estimation panel data model achieved the coefficient of unemployment is 0.001354 which means the increasing of 1 people of unemployment will increase 0.001354 thousand poor people in Java. Thus, unemployment have significant and positive relationship to poverty in Java.

This result is supported by Marinda et al. (2017) in a research *"The Analysis of the Economic Growth, Minimum Wage and Unemployment Rate to the Poverty level in East Java"* state that unemployment rate affects poverty level of East java positively which means when the unemployment rate getting higher, the number of poor family increase as well.