Assessing The Effectiveness Of Using The Investment And Inflation Variable And The Indirect Path Of The Hdi And Gdp In An Effort To Reduce Poverty

Srisinto

ABSTRACT: *This study aims to analyze the effect of the level of price changes in general (inflation), human resource development (HDI), investment and economic growth (GDP) on poverty in Indonesia from 2006 to 2018. The theory states that investment and price changes affect human resource development and economic growth. Meanwhile human resource development and economic growth have an effect on poverty. For that in the analysis used the method of path analysis (path analysis). All data used are secondary data from the Central Statistics Agency, which includes investment, inflation (measuring changes in prices in general), human development index (HDI) which measures human resource development, economic growth (percentage increase or decrease in constant price GDP), and the percentage of poor people who measure the poverty level of an area.*

Empirically shows that investment, inflation, HDI and GDP together have a positive and significant effect on poverty. From the calculation results of this path analysis also, the government is expected to be able to strive to improve the quality of human resources in order to reduce poverty. In addition the government is expected to also try to increase investment in order to spur economic growth in the primary sector. And finally the government is expected to be able to reduce the inflation rate, especially for staple goods, which are quite affordable for the poor.

Keywords: Investment. Inflation, Human Development Index (HDI), Economic Growth (GDP) and Poverty

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I. Preliminary

The problem that often arises in development in a country is poverty, as well as the Indonesian state. Although the Indonesian government has tried with various programs, the problem of poverty does not just disappear. This can be seen from the data presented in table 1 below. The percentage of poor population in Indonesia during 2006-2018 experienced a downward movement, except in 2015 the percentage increased slightly compared to 2014. In 2014 the percentage of poor population was 10.96 percent, whereas in 2015 the percentage of poor people was 11, 13 percent. Then in 2016, 2017 and 2018 decreased to 10.70 percent, 10.12 percent and 9.66 percent respectively.

The complete number of poor people broken down by village and city in Indonesia in 2006-2018 can be seen in table 1 below:

TABLE 1 : NUMBER AND PERCENTAGE OF POOR PEOPLE BY VILLAGE AND CITY, 2006 – 2018

Year	Number of Poor People (million)			Percentage of Poor People (percentage)		
	Urban	Rural	Urban and Rural	Urban	Rural	Urban and Rural
1	2	3	4	5	6	7
2006	14,49	24,81	39,3	13,47	21,81	17,75
2007	13,56	23,61	37,17	12,52	20,37	16,58
2008	12,77	22,19	34,96	11,65	18,93	15,42
2009	11,91	20,62	32,53	10,72	17,35	14,15
2010	11,1	19,93	31,02	9,87	16,56	13,33
2011	11,95	18,94	29,89	9,09	15,59	12,36
2012	10,51	18,09	28,59	8,60	14,70	11,66
2013	10,63	17,92	28,55	8,52	14,42	11,47
2014	10,36	17,37	27,73	8,16	13,76	10,96
2015	10,62	17,89	28,51	8,22	14,09	11,13
2016	10,49	17,28	27,76	7,73	13,96	10,70
2017	10,27	16,31	26,58	7,26	13,47	10,12
2018	10,13	15,54	25,67	6,89	13,10	9,66

Source : BPS-Statistics Indonesia, Statistical Yearbook of Indonesia, 2006 – 2018

The percentage of poor people in September 2018 of 9.66 percent decreased 0.16 percentage points against March 2018 and decreased 0.46 percentage points compared to September 2017. The number of poor people in September 2018 amounted to 25.67 million people decreased 0.27 million people against March 2018 and decreased 0.91 million people against September 2017. There was a decrease in the poor population of 7.02 percent to 6.89 percent, namely March to September 2018.

While the percentage of poor people in rural areas in March 2018 was 13.20 percent, down to 13.10 percent in September 2018. Compared to March 2018, the number of poor people in September 2018 in urban areas decreased by 10 thousand people (from 10.14 million people in the March 2018 to 10.13 million people in September 2018). Meanwhile, rural areas fell by 270 thousand people (from 15.81 million people in March 2018 to 15.54 million people in September 2018).

TABLE 2: HDI, GDP, INVESTATION AND INFLATION IN INDONESIA, 2006 – 2018

Year	HDI	GDP (%)	Investation (billion)	Inflation
2006	70,10	5,50	26,76	6,60
2007	70,60	6,35	45,22	6,59
2008	71,17	6,01	35,23	11,00
2009	71,76	4,63	48,61	2,78
2010	66,53	6,22	76,84	6,96
2011	67,09	6,49	95,47	3,79
2012	67,70	6,26	116,70	4,30
2013	68,31	5,73	156,70	8,38
2014	68,90	5,06	184,60	8,36
2015	69,55	4,88	208,70	3,35
2016	70,18	5,03	245,10	3,02
2017	70,81	5,07	294,50	3,61
2018	71,39	5,17	357,90	3,13

Source:BPS-Statistics Indonesia, Statistical Yearbook of Indonesia, 2006 – 2018

Table 2 above shows that the Human Development Index (HDI) in Indonesia in 2006 to 2009 increased from 70.10 to 71.76. In 2010 HDI in Indonesia amounted to 66.53 and increased to 71.39 in 2018. Economic growth (GDP) in 2006 up to 2018 fluctuated from 5.5% to 6.35 in 2007 and continued changed to 5.17% in 2018. Meanwhile, the amount of investment in 2006 was 26.76 billion and continues to increase to 357.90 billion in 2018. The highest inflation rate from 2006 to 2018 was highest at in 2008 which was 11.00 percent and the lowest in 2009 which was 2.78%.

From the poverty data above it can be said, although the Indonesian government has succeeded in suppressing the number of poor people from year to year, but the number of poor people is still relatively large and still needs more attention. Many factors affect poverty levels in Indonesia, here the author tries to analyze several factors, then provide conclusions in accordance with the results of the analysis. These factors are the Human Development Index (HDI), economic growth, investment and inflation.

The purpose of this study is 1) to determine the effect of individual and joint investment, inflation, HDI and GDP on poverty 2) calculate the effectiveness of the use of direct and indirect channels of the effect of investment and inflation on poverty with HDI and GDP as intervening variables).

II. Theoretical Basis
Poverty

According to Vijaya, Lahoti and Swaminathan (2014) that poverty in a broad sense has the understanding of the limitations carried by a person, family, community or even the country which causes discomfort in life as well as the threat of enforcement of rights and justice, bargaining position (bargaining) in world relations, loss the generation and gloom of the future of the nation or state.Simply and generically Hagenaars (2017) measures poverty by differentiating into three, namely; absolute poverty, relative poverty and cultural poverty.

Economic growth

According to Arsyad (1999: 7) economic growth is defined as an increase in GDP / PNB regardless of whether the increase is greater or smaller than the rate of population growth or whether changes in economic structure occur or not. A new economy can be declared in a developing state if per capita income shows an increasing long-term tendency. According to Sukirno (2013: 50) the rate

of economic growth is determined by the actual increase in goods and services produced by an economy, thus to determine the level of economic growth achieved by a country, real national income must be calculated, that is, real gross national product or real gross domestic product. In some countries, calculations have been made based on fixed prices in the selected year, the following is the formula for calculating the rate of economic growth:

$$G = \frac{PDB_1 - PDB_0}{PDB_0} \times 100\%$$

Information :
G = Economic growth rate
GDP1 = GDP at constant year prices 1
PDB0 = GDP at constant prices the previous year

GDP at current prices illustrates the value added of goods and services calculated using prices in the current year, while GDP at constant prices shows the value of goods and services calculated based on the price of a particular year used as a base year.

Investation
According to Tambunan (2001: 83) in the National balance sheet or GDP structure according to its use, investment is defined as the formation of domestic fixed capital. Investment can be distinguished between gross investment (gross domestic fixed capital formation) and net investment (gross domestic fixed capital formation).
Murdifin Haming and Salim Basalamah, (2003: 4) define investment as an activity related to the withdrawal of resources (funds) used to procure capital goods at the present time and with capital goods a new product flow will be produced in the future. In this definition investment is an activity to withdraw the source of funds used to purchase capital goods and capital goods that will produce new products.

Human Development Index
The Human Development Index (HDI) is a concise measure of the average achievement / success of the main dimensions of human development, namely: longevity and healthy living, having knowledge, and having a decent standard of living.
Longevity and healthy living are depicted by life expectancy at birth (e0), which is the number of years that a newborn is expected to take to live on the assumption that the pattern of mortality according to age at birth is the same throughout the baby's age. Knowledge is measured through indicators of the average length of school and long school expectations. The average length of school is the average length (years) of the population aged 25 years and over in undergoing formal education. Expectations of school duration are defined as the number of years of school expected to be felt by children at a certain age in the future. An adequate standard of living is illustrated by adjusted per capita expenditure, which is determined by the value of expenditure per capita and purchasing power parity.

Inflation
According to Boediono (1982: 97) the notion of inflation is the tendency of prices to rise generally and continuously. Based on the factors that cause it, inflation can be divided into two types (Sadono Sukirno, 2006), namely:
a) Demand Pull Inflation
Inflation that occurs as a result of the level of the economy that reaches the level of full employment (full employment) and rapid economic growth.
b) Cost Push Inflation (Cosh Pull Inflation)
Inflation that occurs due to an increase in production costs. Increasing production costs will encourage price increases, although there will be a risk of reducing the demand for the goods they produce.

Method
Research Types and Data Sources

The type of research used is quantitative research. Quantitative research is a scientific approach that views a reality that can be classified, concrete, observable and measurable, the relationship of variables is causal in which the research data in the form of numbers and analysis using statistics (Sugiyono, 2008).

The data source used is secondary data from the Central Statistics Agency (BPS), in the form of times series data from 2006 to 2018. This study uses tools in the form of path analysis, multiple linear regression analysis, t test, F test and coefficient of determination. Causality relationships are used path analysis and intervening. The Human Development Index (HDI) variable and Gross Domestic Product (GDP) are used as intervening variables for the investment and inflation variables for the poverty variable. Multiple linear regression analysis is used to analyze the effect of several independent variables (X) on one independent variable (Y), as follows:
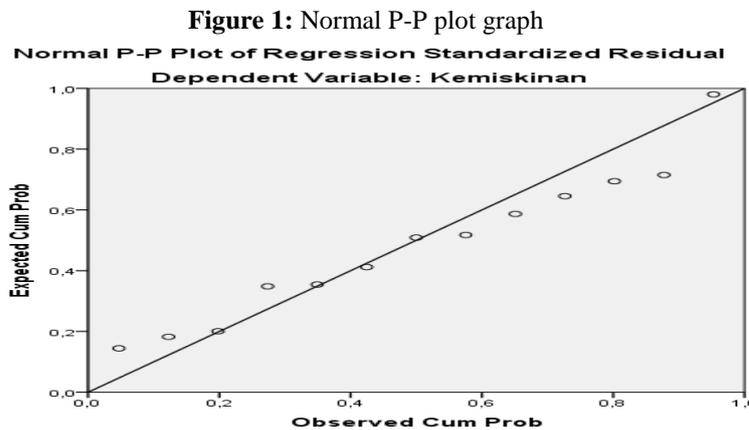
Equation 1: $Y1 = \beta0 + \beta1X1 + \beta2X2 + e$
Equation 2: $Y2 = \beta0 + \beta1X1 + \beta2X2 + e$
Equation 3: $Y3 = \beta0 + \beta1X1 + \beta2X2 + \beta3\ X1 + \beta4\ X4 + \beta\ Y + e$

III. Research Results and Discussion

Classic assumption test
1. Normality Test

Figure 1: Normal P-P plot graph

From the graph above it can be seen that the points spread around the line and follow the diagonal line, the residual value is normally distributed

2. Multicollinearity Test

To find out the presence or absence of multicollinearity symptoms generally is to look at the value of variance inflation factor (VIF) and tolerance, if the VIF value <10 and tolerance> 0.1 then it is stated that there is no multicollinearity (Ghozali, 2011).

Tabel 3 : Colinearity Statistics

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	IPM	,637	1,571
	PDB	,472	2,118
	Investasi	,651	1,537
	Inflasi	,737	1,357

Based on the table above does not occur multicollinearity, the regression coefficient results obtained that the tolerance value> 0.1 and VIF value <10. Therefore, the data used in this study there is no multicollinearity between independent variables in the regression.

3. Heteroscedasticity Test

Figure 2: Heteroscedasticity Test Output
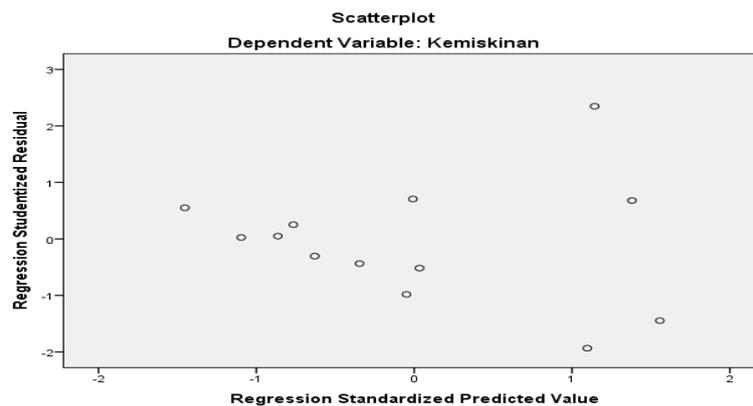
From Figure 2 above it is known that the points form a clear pattern, and the points spread above and below the number 0 (zero) on the Y axis, so it can be concluded that there is no heteroscedasticity in the regression model.
4. Autocorrelation Test
Based on the test results using the Durbin Watson (DW) test for the residual regression equation, the durbin watson (DW) count is 1.099 so that there is no autocorrelation

Multiple Linear Regression Results

Table 4: Equation Regression Results I
Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std Error	Beta		
(Constant)	69,337	1,865		37,179	0,000
Inflation	0,003	0,006	0,169	0,482	0,640
Investation	0,034	0,228	-0,052	-0,147	0,886

Dependent Variable: HDI

Table 5 : Equation Regression Results II
Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std Error	Beta		
(Constant)	5,649	0,602		9,378	0,000
Investation	-0,002	0,002	-0,408	-1,348	0,208
Inflation	0,050	0,074	0,205	0,679	0,513

Dependent Variable: GDP

Table 6 : Equation Regression Results III
Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std Error	Beta		
(Constant)	-32,885	19,216		-1,707	0,126
HDI	0,637	0,238	0,424	2,680	0,028
GDP	0,730	0,735	0,182	0,992	0,350
Investation	0,020	0,004	-0,844	-5,396	0,001
Inflation	0,024	0,143	0,024	0,166	0,872

Dependent Variable: Poverty
The regression equation for calculating tables 4, 5 and 6 is as follows:
$Y1 = 69,337 + 0,169X1 - 0,052X2 + e1$ (Equation 1)
$Y2 = 5,649 - 0,408 X1 + 0,205 X2 + e2$ (EquationII)
$Y3 = -32,885 + 0,424X1 + 0,182X2 - 0,844X3 + 0,024X4 + e3$ (EquationIII)

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Table 7: F Test Results for Equation I

Anova

Model		Sumof Squares	df	Mean Square	F	Sig.
1	Regression	1,378	2	0,689	0,206	0,817
	Residual	33,460	10	3,346		
	Total	34,838	12			

Predictors : (Constant), inflation, investation
DependentVariable : HDI

Table 8 : F Test Results for Equation II

Anova

Model		Sumof Squares	df	Mean Square	F	Sig.
1	Regression	1,408	2	0,704	2,017	0,184
	Residual	3,491	10	0,349		
	Total	4,899	12			

Predictors : (Constant), inflation, investation
DependentVariable : GDP

Table 9 : F Test Results for Equation III

Anova

Model		Sumof Squares	Df	Mean Square	F	Sig.
1	Regression	68,544	4	17,136	13,697	0,001
	Residual	10,009	8	1,251		
	Total	78,553	12			

Predictors : (Constant), inflation, HDI, investation and GDP
DependentVariable : Poverty

Coefficient Determination Test (R^2)

Table 10: Determinant Coefficients (R^2) Equation I

Summary

Model	R	R Square	Adjjusted RSquare	Std. Errorof theEstimate
1	0,199	0,040	-0,153	1,82921

Predictors : (Constant), Inflation, Investation
DependentVariable : HDI

Table 11: Determinant Coefficients (R^2) Equation II

Summary

Model	R	R Square	Adjjusted RSquare	Std. Errorof theEstimate
1	0,536	0,287	0,145	0,59081

Predictors : (Constant), Inflation, Investation
DependentVariable : GDP

Table 12: Determinant Coefficients (R^2) Equation III

Summary

Model	R	R Square	Adjjusted RSquare	Std. Errorof theEstimate
1	0,934	0,873	0,809	1,11852

Predictors : (Constant), Inflation , HDI, Investation, GDP
DependentVariable : Poverty

a. Hypothesis Test Effect of Inflation and Investment partially on HDI (First Equation)

Table 4 shows the t test with a significance level of 0.05, known the probability value (sig.) Of inflation = 0.640> 0.05 and investment = 0.886> 0.05. So that Ho is accepted and H1 is rejected, meaning that inflation and investment do not have a significant effect on HDI. Because the standardized value of the inflation coefficient is positive 0.169 and the investment is negative -0.052,

the conclusion is that inflation does not have a significant positive effect while investment does not have a significant negative effect on the HDI

b.   Hypothesis Test of the Effects of Inflation and Investment simultaneously on HDI (First Equation)

Table 7 shows the F test with a significant level of 0.05 known the value of F inflation and investment = 0.206 with a probability (Sig.) Of 0.817> 0.05 So that H0 is accepted and H1 is rejected, it means that there is no simultaneous significant effect between inflation and investment on HDI .

c .   Test the regression equation (First Equation).

Table 10 shows the sumary model R^2 value of 0.040 means that both inflation and investment free variables can explain the variation of the HDI dependent variable by 4% while the remaining 96% is explained by other factors.

d. Hypothesis Test on the Effect of Inflation and Investment Partially on GDP (Second Equation)

Table 5 shows the t test with a significance level of 0.05 known the probability value (sig.) Of inflation = 0.208> 0.05 and investment = 0.513> 0.05. So Ho is accepted and H1 is rejected, meaning that inflation and investment do not have a significant effect on GDP. Because the standardized value of the inflation coefficient is negative -0.408 and the investment is positive 0.205, the conclusion is that inflation does not have a significant negative effect while investment does not have a significant positive effect on GDP.

e.   Hypothesis Test of the Effects of Inflation and Investment simultaneously on GDP (Second Equation)

Table 8 shows the F test with a significant level of 0.05 known the value of F inflation and investment = 2.017 with a probability (Sig.) Of 0.184> 0.05 So that H0 is accepted and H1 is rejected, it means that there is no simultaneous significant effect between inflation and investment on GDP .

f.   Test the regression equation (Second Equation).

Table 11 of the sumary model shows that the R^2 value of 0.287 means that both inflation and investment free variables can explain the variation of the GDP dependent variable by 28.7% while the remaining 71.3% is explained by other factors.

g. Hypothesis Test Effect of HDI, GDP, Investment and Inflation partially on Poverty (Third Equation)

Table 6 shows the t test with a significance level of 0.05 known the probability value (sig.) HDI = 0.028 <0.05 and Investment = 0.001 <0.05 So Ho is rejected and H1 is accepted, meaning HDI has a positive and significant effect on poverty, because the value Standardized Coefficients for positive HDI. This is in accordance with M. Alhudori's statement which states that HDI has a positive influence on the number of poor people. (M. Alhudori, 2017). But this is contrary to the statements of Ahmad Syaifullah and Nazaruddin Malik who stated that the HDI has a negative and insignificant influence on poverty levels in ASEAN-4. (Ahmad Syaifullah and Nazaruddin Malik, 2017).

Whereas investment has a negative Standardized Coefficients meaning investment has a negative and significant effect on poverty. This is consistent with the statement of Kadek Novita Arshanti and I.G.A.P Wirathi who stated that investment had a significant negative effect on poverty in the Province of Bali. (Kadek Novita Arshanti and I.G.A.P Wirathi, 2015.

Probability value (Sig.) Of GDP = 0.350> 0.05 and inflation = 0.872> 0.05. So Ho is accepted and H1 is rejected, meaning that GDP and inflation do not have a significant effect on poverty. Because the standardized value of the coefficient of GDP is positive, the conclusion is that GDP has a positive but not significant effect. This is consistent with statements from Ari Kristin Prasetyoningrum and U Sulia Sukmawati that economic growth does not significantly influence poverty reduction (Ari Kristin Prasetyoningrum and U Sulia Sukmawati, 2018). While the value of standardized inflation is positive, the conclusion is that inflation has a positive effect but is not significant on poverty. This is different from Selamat Siregar's statement which states that inflation has a direct and significant effect on poverty levels (Selamat Siregar, 2017).

Hypothesis Test Effects of HDI, GDP, Investment and Inflation simultaneously on Poverty (Third Equation)

Table 9 shows the F test with a significant level of 0.05 known the value of F HDI, GDP, Investment and Inflation of 13.679 with a probability (Sig.) Of 0.001 <0.05. So H0 is rejected and H1 is accepted, meaning there is a significant simultaneous influence between HDI, GDP, investment and inflation on poverty.

Test the regression equation (Third Equation).
Table 12 of the sumary model shows that the R2 value of 0.873 means that the four independent variables HDI, GDP, investment and inflation can explain the variation of the poverty dependent variable by 87.30% while the remaining 12.70% is explained by other factors.

Path Analysis

Figure 3: Direct and Indirect Influence Path Analysis
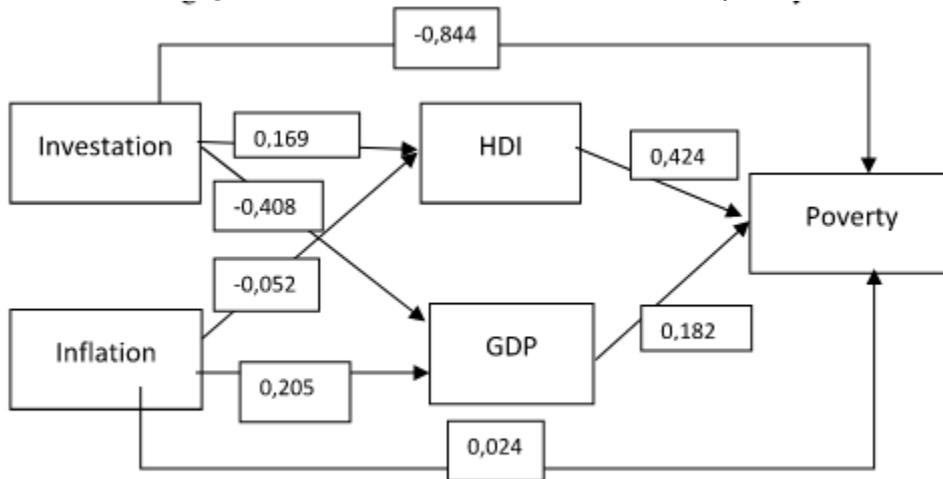
Table 13 Calculation Results of Path Analysis

Direct Effects		Indirect Effects		Total Impacts
X1 → X3	0,169			
X1 → X4	-0,408			
X2 → X3	-0,052			
X2 → X4	0,205			
X1 → Y	-0,844	X1 → X3 → Y	0,072	0,593
		X1 → X4 → Y	-0,074	-0,226
X2 → Y	0,024	X2 → X3 → Y	-0,022	0,372
		X2 → X4 → Y	0,037	0,387
X3 → Y	0,424			
X4 → Y	0,182			

1. Reducing the amount of poverty in Indonesia by using investment variables through the intervening variable Human Development Index (HDI) is the most effective, because the indirect effect has a value greater than the direct effect (0.072> -0.844). The effort made by the Government is to increase investment that can improve the quality of Human Resources as measured by the high Human Development Index (HDI) in order to reduce poverty.
2. Reducing the amount of poverty in Indonesia by using investment variables through intervening the Gross Domestic Product (GDP) is effective, because the indirect effect has a greater value than the direct effect (-0.074> -0.844). Efforts made by the Government are to increase investment in sectors or business fields that are able to boost Gross Domestic Product (GDP), of course, sectors that can provide greater benefits to the poor population, such as the primary sector.
3. Reducing the amount of poverty in Indonesia using the inflation variable through the intervening variable Human Development Index (HDI) is ineffective, because the indirect effect has a value that is smaller than the direct effect (-0.022 <0.024). Efforts made by the Government are to reduce the inflation rate through subsidies on basic necessities so that the price is affordable by the poor.
4. Reducing the amount of poverty in Indonesia by using the inflation variable through intervening the Gross Domestic Product (GDP) is effective, because the indirect effect has a value greater than

the direct effect (0.037> 0.024). Efforts made by the Government are to reduce the inflation rate so that the added value of all sectors or business fields can move so that it boosts the Gross Domestic Product (GDP), and finally the poverty rate can be reduced.

IV.   Conclusion

1. t test Results

a. Equation I shows that inflation and investment have no significant effect on HDI.

b. Equation II shows that inflation does not have a significant negative effect while investment does not have a significant positive effect on GDP.

c. Equation III shows that the HDI has a non-significant positive effect, GDP has a positive but not significant effect, investment has a significant negative effect and inflation has a positive but not significant effect on poverty.

2. F test results

a. Equation I can be concluded simultaneously that inflation and investment variables simultaneously have no significant effect on HDI

b. Equation II can be concluded simultaneously that inflation and investment variables simultaneously have no significant effect on GDP

c. Equation III can be concluded simultaneously variables of HDI, GDP, investment and inflation simultaneously have a significant effect on poverty

3. The results of calculating the value of R^2

a. Equation I shows that the R^2 value of 0.040 means that both inflation andinvestment free variables can explain the variation of the HDI dependent variable by 4% while the remaining 96% is explained by other factors.

b. Equation II shows that the R^2 value of 0.287 means that both inflation andinvestment free variables can explain the variation of the GDP dependent variable by 28.7% while the remaining 71.3% is explained by other factors.

c. Equation III shows that the R^2 value of 0.873 means that the four independentvariables HDI, GDP, investment and inflation can explain the variation of the poverty dependent variable by 87.30% while the remaining 12.70% is explained by other factors.

4.The indirect effect of investment through the intervening variable Human Development Index (HDI) on poverty has the most effective results because the indirect effect has a greater value than the indirect effect through the intervening variable GDP and the direct effect of investment on poverty. Also greater than the direct effect of inflation on poverty and the indirect effect of inflation through intervening variables HDI and GDP.

V.   Suggestion

1. Efforts made by the Government are to increase investment that can improve the quality of Human Resources measured by the high Human Development Index (HDI) in order to reduce poverty.

2. Efforts made by the Government are to reduce the inflation rate so that the added value of all sectors or fields of business can move so as to boost Gross Domestic Product (GDP), and finally the poverty rate can be reduced.

3. The number of variables that affect poverty levels in Indonesia is enormous, so for future researchers to add other factors that are not yet present in this study so that more optimal research results can be obtained.

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