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THE INFLUENCE OF AGRICULTURAL IMPORTS, FOREIGN IVESTATIONS, EXCHANGE VALUE ON INDONESIAN ECONOMIC GROWTH

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ABSTRACT

Various factors influence Indonesia's economic growth. The primary goal of this study is to examine the impact of agricultural imports, foreign direct investment (FDI), and the exchange rate on Indonesian economic growth from 1989 to 2019. Secondary data from 1989 to 2019 was used in this study, and it included variables such as economic growth, agricultural exports, agricultural imports, foreign direct investment (FDI), and exchange rates. The information came from the World Bank. An econometric model employing the ECM (Error Correction Model) method is utilized to prove the research hypothesis, and it is estimated using the E-Views version 10 application.

***Keywords**: Economic Growth, Imports of agricultural commodities, Foreign Investment, Exchange Rate, Error Correction Model.*

1. INTRODUCTION

Economic development is never separated from economic growth because the economic development includes a wider range of factors such as changes in savings and investment, and also the structure of the economy. The economic growth of a country is measured by the increase of GDP (Gross Domestic Product) based on constant prices from year to year.

According to Todaro & Smith (2006), economic development was defined as the ability of the economy to create and sustain the increasing of the Gross Domestic Product (GDP), even though the initial conditions were unfavorable and static for a long period of time.

Economic development and economic growth could not be separated because the economic development encourages the economic growth, and conversely, economic growth accelerated economic development. (Sukirno, 2006) stated that economic growth was defined as the expansion of economic activity that resulted in the increasing of the number of goods and services produced by a society.

According to the classical theory of Adam Smith (in Suryana, 2000:53-54) there were 2 main aspects that determined economic growth, which were (1) total GDP output growth and (2) population growth. Growth in total GDP output could be achieved if a country got benefits from specialization activities. Specialization could be realized if there was a wide market available to accommodate the production. Doing international trading according to Adam Smith, it could provide a large market. Then, the export and import activities were two types of trading operations that madeup the international trade.

Import activity was the action of buying goods from abroad by complying the government regulations, which were paid by using particular currency (Purnamawati, 2013). Import activity had a significant impact on a country's economic growth. According to the Hecksher-Ohlin theory (in Appleyeard, Field, and Cobb, 2008), he asserted that a country would import products/goods that utilize production elements that were not or rarely owned by society in that country. When compared to doing their own production but not being efficient, this activity would be beneficial for the country. However, in the case of Indonesia, resources are available in terms of agriculture, which is Indonesia is already rich on it and is already supported by abundant natural wealth and a large area of to land to support that agriculture. However, it is still needed to import the agricultural commodities that can be produced by themselves, and if the country still relies too much on imports, it will also hamper the growth and have bad impact on the Indonesian economy. Then, the country will xperience a negative relationship between imports and economic growth.

As a developing country, Indonesia tries to generate an international trade surplus by reducing imports and increasing exports of domestic products to foreign markets. Increasing productivity by reducing imports and increasing domestic output will certainly boost domestic economic growth. The primary goods, such as products, fuels, forest products, and raw materials, and secondary (manufacturing) and tertiary (services) goods are examples of imported commodities. In this situation, it can be started by limiting Indonesia's agricultural imports and increasing domestic agricultural production to fulfill the domestic needs.

The Neo-classical exogenous economic growth or economic growth model from Solow (1957) explained that economic growth could not be influenced by the role of the imports act. According to the neo-classical model, economic growth could only be influenced by production input factors such as labor, technological improvements, and capital. From the post neoclassical theory or known as the endogenous economic growth theory, it was explained that the existence of international trade both imports and exports had a positive influence on economic growth and output (Romer, 1986).

Harrod Domar's theory about saving and investment is the one of the economic development theories that is still used today. The conclusion of this theory was that the large savings and investments would determine economic growth. A country's economic growth would be low if savings and investment were low. The main development problem was how to increase the capital investment, while one of underdevelopment problems was the lack of capital. Economic development occurred when there was capital and then that capital was invested. Almost every country, especially developing countries, currently needs foreign money. Foreign money is becoming increasingly vital for the development of a country. As a result, the presence of foreign investors seemed unavoidable. The effect of foreign investment impact on the economic growth was also explained in research (Muazi & Arianti, 2013) which conducted a case study in the province of Central Java, where foreign investment in Central Java in the short and long term had a positive and significant effect on economic growth in Central Java.

When two or more countries will do trading transactions such as exports and imports activities, there will be differences in the currency that is used between the countries concerned. The impact of the transaction is the difference in currency types between the exporting and importing countries which causes a difference in currency types exchange rates.

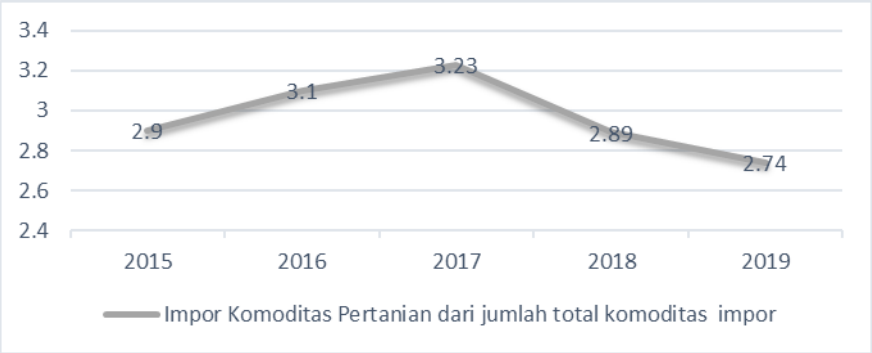
The exchange rate was the amount of domestic money needed, which were the number of rupiah needed to obtain 1 unit of foreign currency (Murni, 2006). In an open economy, the exchange rate was the one of the most significant factors because it affected other variables such as prices, interest rates, balance of payments, and the current account (Batiz, 1994). According to the Mundell-Fleming theory (Mankiw 2003: 306-307), there was a negative relationship between the exchange rate and economic growth, where the higher the exchange rate was, the lower the net exports (the difference between exports and imports) would be. It had an impact on the decreasing amount of output which caused the GDP (economic growth) to be decreasing. Then, the effect of the exchange rate on economic growth was also explained by research from (Ismanto et al., 2019) that economic growth was influenced by exchange rates and imports.

Figure 1. The Development of Indonesia's Economic Growth Period 2015-2019 in Percent (%)

Source: World Bank (processed data)

In Figure 1, it can be observed that Indonesia's economic growth experienced an increasing trend from 2015 to 2018, an increase started from 2015 which was 4.88% to 5.03% in 2016, after that, in 2017 it increased again to 5.07%, and in 2018, it showed the number of 5.17%. However, in 2019, Indonesia's economic growth fell to 5.02%.

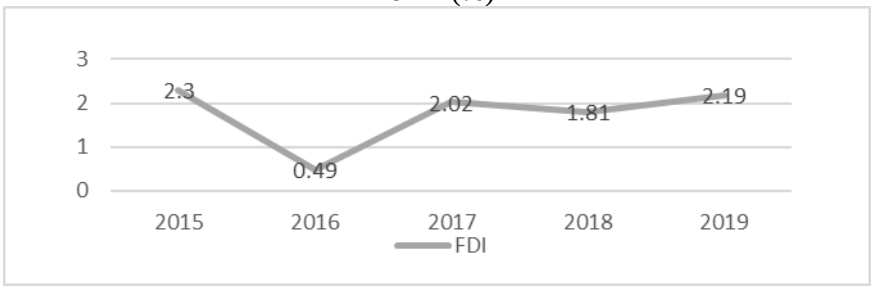
Figure 2. The Exports and Imports of Indonesian Agricultural Commodities for the 2015-2019 Period in Percent form (% of total commodities)



Sources World Bank (Processed Data)

From Figure 2, it could be seen that the imports of Indonesian agricultural commodities showed fluctuating numbers. In 2015 imports of agricultural commodities increased from 2015 to 2018, which showed the figure of 2.9% in 2015 increased to 3.1% in 2016. Then it increased again to 3.23% in 2017. After that, the import numbers of agricultural commodities fell to 2.98% in 2018, and fell again in 2019 to 2.74% of total imported commodities. It could be seen that since 2017 Indonesia had reduced the number of imports in terms of agricultural commodities.

Figure 3. The Development of Indonesia's Foreign Direct Investment in Period of 2015-2019 in Percent form (%)



Source: World Bank (Processed Data)

From Figure 3, it could be seen that the movement of foreign investment in Indonesia was fluctuating. From 2015, foreign investment in Indonesia showed a percentage of 2.3%, and decreased to 0.49% in 2016. The, it increased again to 2.02% in 2017. It fell again in 2018 showing a value of 1.81%, and increased again in 2019 by showing the percentage of 2.19%.

Figure 4 Development of the Rupiah Exchange Rate against the US$ for the 2015-2019 Period

From Figure 4, it could be seen that the exchange rate of the Rupiah against USDollar was volatile, from 2015 the exchange rate touched the percentage of Rp. 13,389.41/US$, then strengthened to Rp. 13,308.33/US$ in 2016, then weakened in 2017 and 2018, from Rp.13,380.83/US$ to Rp.14,236.94/US$, while in 2019 the rupiah strengthened against the dollar at Rp.14,147.67/US$.

The results of previous research by (Ginting, 2017) on the long-term coefficient between the variables of economic growth and the variables of exports, imports, and investment had a long-term relationship. The short-term estimation showed that the export and investment variables had a positive and significant impact on economic growth, according to the short-term estimate. Meanwhile, the import variable had a significant negative impact on economic growth. Another study was also conducted by (Fitriani, 2019) that showed that from 2011 to 2015, exports had a positive impact on Indonesia's economic growth, while imports had a negative impact. It was also supported by research conducted (Pridayanti, 2013) that in the period 2002 to 2012, the exports had a positive and significant effect on economic growth in Indonesia, while imports and exchange rates had a negative and significant effect on economic growth in Indonesia.

Based on the previous research, it could be seen that imports had a detrimental impact on Indonesia's economic growth. Meanwhile, the current study aimed to examine the effect of imports of agricultural commodities from the total imported commodities in influencing Indonesia's economic growth in the period 1989 to 2019. Therefore, by using the ECM (Error Correction Model) technique, this study tried to determine the elasticity of each variable of agricultural imports with the addition of foreign investment (FDI) factors and the exchange rate in influencing Indonesian economic growth in the short and long term from 1989 to 2019. By using the ECM method, it would be known how large the adjustment coefficient was from the short term, and the long-term significance of the model.

2. RESEARCH METHOD

This study used quantitative methods with secondary data. The data taken were in type of time series, and the data would be processed and analyzed using a multiple linear regression approach. Time series data was the data that was chronologically arranged according to time on a certain variable. In the study of the Effect of Agricultural Imports, Foreign Investment (FDI), and Exchange Rates on Indonesia's Economic Growth, that study used a time span from 1989 to 2019 and the data was taken from the World Bank website.

The data needed were the economic growth, agricultural imports, foreign investment (FDI), and the exchange rate of the rupiah with the US dollar. This study aimed to determine what factors could affect economic growth in Indonesia. This study used the Error Correction Model (ECM) method to see the effect of variables on economic growth in the long and short term.

Before using the ECM method, a stationarity test must first be done on the data that would be analyzed. The test was done by the Unit Root Test, which was described by the Augmented Dickey-Fuller (ADF) test. This cointegration test aimed to overcome the problem of non-stationary time series data. A number of time series data that deviated from the short-term average, wiould move towards a condition of equilibrium in the long term. It could be interpreted that if a number of variables were integrated with each other in the same order and have long-term balance, it could be said that these variables were cointegrated (Gujarati, 2007). 2004).

The cointegration test between variables had the aim of showing the existence of a long-term equilibrium relationship between the independent variables and the dependent variable. However, there was a possibility that there would be an imbalance between these variables in the short term. The occurrence of this imbalance would often be encountered in economic behavior, which was caused by the inability of economic actors to immediately adjust some of the changes that had occurred in the behavior of economic variables (Harris & Sollis, 2003).

The cointegration test above could describe the equilibrium relationship of the economic system which showed that there was a linear combination of non-stationary series. From the statement above, it could be interpreted that what economic actors wanted, was not necessarily the same as the facts on the ground or what actually happened. Thus, it was necessary to make adjustments. From these problems, we needed a method or technique that could correct the imbalance that occurred in the short term towards a long term balance. The correction model for imbalance was referred to as an error correction model (Error Correction Model = ECM) (Widarjono, 2018).

To analyze the ECM regression, the first step was to estimate the long-term economic growth model that was used in this study, which is as follows:

$$\mathbf{PE_t = \beta_0 + \beta_1 Impor_t + \beta_2 FDI_t + \beta_3 Kurs_t + e_t}$$

Description :

β0 = Intercept or Constant
β1, β2, β3, β4 = coefficient
PE = GDP Economic Growth (%)
Import = Agricultural Imports (% from the total imported commodities)
FDI = Foreign Direct Investment (%)
The exchange rate = The exchange rate of the rupiah against the US dollart
t = year
e = Error

From the above equation, the short-run equation was made. ECM was characterized by the inclusion of an Error Correction Term (ECT) element in the model. The ECT, which was the stationary in the long-term equation, was not only used to determine the presence or absence of cointegration, but was also used as one of the variables in the short-term equation. If the ECT coefficient was statistically significant, the probability value was less than 5%, then the model specification wasvalid. Therefore, the short-term equation in this study could be formulated as follows:

$$\mathbf{\Delta PE_t = \Delta\beta_0 + \Delta\beta_1 Impor_t + \Delta\beta_2 FDI_t + \Delta\beta_3 Kurs + \Delta\beta_4 ECT + \Delta e_t}$$

Description :

β0 = Intercept or Constant
β1, β2, β3, β4, β5 = coefficient
PE = GDP Economic Growth (%)
Import = Agricultural Imports (% of total imported commodities)
FDI = Foreign Direct Investment (%)
The exchange rate = The exchange rate of the rupiah against the US dollar
ECT = Error Correction Variable
t = year
e = Error

3. RESULTS AND DISCUSSIONN

3.1. Stationarity Test

Before testing the Error Correction Model (ECM) , an overall test would be done on the model. However, before testing the entire model, it was necessary to test stationarity on the data to be used. Stationarity test on the data was used for all variables by using the Augmented Dickey Fuller test (ADF test). The results of the calculation of the stationarity test could be seen in Table 1, which showed that at the level significance of 5%, there was 1 variable that was entered to indicate stationary characteristic. That variable was economic growth that was indicated by a probability value below alpha 0.05. As for the other 3 variables, which had not yet reached stationary characteristic, which agricultural imports, investment, and the exchange rate, they could be seen from the probability value of the variable at levels above alpha 0.05. However, on the different tests at the 1st the difference level for all variables, they showed stationarity characteristic.

Table 1. Stationerity Test

VARIABle	ADF test	
	Level	1st *Difference*
ECONOMIC GROWTH	0.0059	0.0000
AGRICULTURAL IMPORT	0.7479	0.0004
INVESTMENT	0.2400	0.0003
EXCHANGE RATE	0.7334	0.0000

Source: Results processed with Eviews 10

3.2. Cointegration Test

After doing the stationarity test, the next step was to do a cointegrity test using the Johansen method. If the test results proved that there was a cointegration vector, then the ECM was determined for the equation model used. All variables used in this study fulfilled the requirements for the integration process, whereas all variables were stationary at the same degree, which were at the 1st difference level. It showed that all variables had an integrated nature of orde one.

Based on the results of the Johansen cointegration test at lag 2 of the variable data , it was shown in Table 2 that there were 2 cointegration equations at a significant level of 5%. Therefore, the variables of economic growth, agricultural imports, FDI, and the exchange rate had a linear combination which is stationary (cointegration).

Table 2. Cointegration Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.711129	71.71327	47.85613	0.0001
At most 1 *	0.546671	36.94360	29.79707	0.0063
At most 2	0.403532	14.79176	15.49471	0.0636
At most 3	0.011482	0.323349	3.841466	0.5696

*Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

3.2. ECM Test

Testing with this ECM model was used in this study to see the long-term relationship of the cointegrated variable equations. The following below were the results of the the long term ECM test (table 3) and short term ECM test (table 4) :

Table 3. Long-Term Ecm Test

Variable	Long Term ECM Coefficient	t-statistic	Probability
Constant	18.97187	3.426648	0.0020
AGRICULTURE IMPORT	-1.891671	-2.420884	0.0225
FDI	-0.535294	-0.713682	0.4815
EXCHANGE RATE	-0.000611	-3.110587	0.0044

Table 4. Short-Term Ecm Test

Variable	Short Term ECM Coefficient	t-statistic	Probability
Constant	0.662611	1.724800	0.0969
AGRICULTURE IMPORT	-0.951306	-1.237240	0.2275
FDI	0.158266	0.399413	0.6930
EXCHANGE RATE	-0.002078	-6.900553	0.0000
ECT(-1)	-0.592255	-3.943354	0.0006

From the results of the long-term ECM estimation, it could be seen in table 3 above that the results of agricultural imports and exchange rates had a negative and significant effect on economic growth in Indonesia. Then, the FDI variable also had a negative and insignificant effect on economic growth in Indonesia. If the analysis on the long term test was 1% increased in imports of agricultural commodities, it would reduce economic growth -1.891671%. If the increase of FDI variable was on 1%, it would reduce economic growth by -0.535294%, and if the condition the Exchange rate variable was in 1% increase, it would reduce economic growth by - 0.000611 %.

The results of the ECM estimation for the short term test could be seen that the import of agricultural commodities had a negative and insignificant effect on economic growth in Indonesia, while the investment variable had a positive and insignificant effect on economic growth in the short term. The most important of the short-term ECM equations was the value of the Error Correction Term with a coefficient of -0.573596 and significant, because the probability value was below alpha 0.05.

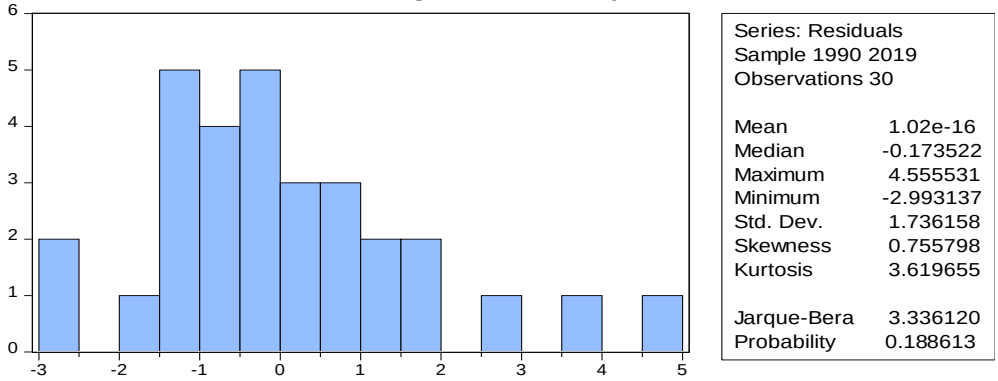
From the ECM estimation results above, it could be seen that the higher increase in imports of agricultural commodities would reduce economic growth in the short and long term. It was because too many imports of agricultural commodities that would make it difficult for domestic agricultural products to compete. This was because usually the prices of imported agricultural commodities were cheaper than commodities in the country. If this problem was ignored, it would result in domestic agricultural producers, especially farmers, would be going out of their business. As a result, if the farmers were out of their business, inevitably, producers of the products who needed raw materials from agricultural commodities, would do import because the demand for agricultural commodities from domestic farmers was not sufficient.

Because imports required an exchange rate in transactions, this meant that each import would weaken the Indonesian exchange rate against foreign currencies, so that in the short and long term any increase in the exchange rate, would have a negative effect on economic growth in Indonesia. Therefore, the government must make a policy of limiting the import of agricultural commodities to protect domestic farmers, so that their products could be useful and beneficial in their own domestic market. Then, the government must encourage farmers to boost their production by providing subsidies in the form of fertilizers, tools , or anything that could support production and funds to farmers , so that they could increase their production and they would not depend on imports which would potentially hamper the economic growth of Indonesia.

This result related with the research from (Sari, 2014) where domestic rice production had a negative effect on rice imports in Indonesia in the short and long term, and the exchange rate of the rupiah against the US dollar had negative effect on rice imports in Indonesia in the short and long term. Then, for the FDI variable, it had a positive effect in the short term on economic growth in Indonesia because there were new sources of capital that stimulated economic growth in Indonesia, which was in the long term period. Furthermore, the technological advances in the technology would inevitably shifted the productivity from human power to machine power that could impact on unemployment which also would hampers economic growth in Indonesia.

After doing the ECM TEST, it was continued to do the classic assumption test which had the function of knowing whether the model we chose fulfilled the best criteria model or not. The results of the classical assumption test that had been analyzed as follows:

Figure 5. Normality Test



From Figure 5 about the Normality Test above, it could be seen that the Jarque-Bera statistic value showed a number of 3.336120 with a probability value showing the number 0.188613 which was greater than 0.05 or 5%. Therefore, it could be concluded that the data was normal or fulfilled the normality requirements.

Table 5. Multicollinearity Test

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.147584	1.266267	NA
AGRICULTURE IMPORT	0.591198	2.155738	2.115256
D1_FDI	0.157013	1.443322	1.440095
D1_EXCHANGE RATE	9.07E-08	1.837512	1.705008
RESID01_ECT(-1)	0.022557	1.638029	1.637785

Source: Results processed with Eviews 10

Based on table 5 of the Multicollinearity Test above, it could be seen that the VIF value for the Agricultural Import variable was 2.115256, where the FDI variable was 1.440095, and the exchange rate variable was 1.705008. The VIF value of all variables was less than 10, so it could be concluded that there was no multicollinearity in these variables. Therefore, it could be said that the model was free from multicollinearity problems.

Table 6. Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.961019	Prob. F(4,25)	0.4461
Obs*R-squared	3.998127	Prob. Chi-Square(4)	0.4063
Scaled explained SS	3.636706	Prob. Chi-Square(4)	0.4574

Source: Results processed with Eviews 10

Based on table 6 of the Heteroscedasticity Test above, it could be concluded that the Chi-square probability value showed a number of 0.4063 which was greater than = 5%. It meant that significant and the regression model used was free from heteroscedasticity problems.

Table 7. Autocorrelation Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.012760	0.313205	-0.040740	0.9679
D1_AGRICULTUREIMPORT	0.268728	0.657085	0.408970	0.6867
D1_FDI	0.097424	0.327263	0.297692	0.7689
D1_EXCHANGERATE	-1.91E-05	0.000251	-0.076044	0.9401
RESID01_ECT(-1)	-0.139159	0.145870	-0.953996	0.3509
RESID(-1)	0.894553	0.253676	3.526362	0.0020

RESID(-2)	-0.621551	0.298502	-2.082235	0.0497
RESID(-3)	0.197222	0.304726	0.647210	0.5245
RESID(-4)	-0.015627	0.246101	-0.063496	0.9500

R-squared	0.461006	Mean dependent var	1.02E-16
Adjusted R-squared	0.255674	S.D. dependent var	1.736158
S.E. of regression	1.497858	Akaike info criterion	3.889274
Sum squared resid	47.11516	Schwarz criterion	4.309634
Log likelihood	-49.33912	Hannan-Quinn criter.	4.023751
F-statistic	2.245181	Durbin-Watson stat	2.143255
Prob(F-statistic)	0.065813		

Source: Results processed with Eviews 10

Based on Table 7 Autocorrelation Test above, it could be concluded that the F-statistic value showed the number 2.245181 with a probability value of 0.065813, which was greater than = 5% (0.05) at lag 4, It meant that the significant and the regression model that had been used was free from autocorrelation problems.

4. CONCLUSIONS

The conclusions is as follows:

a. In the short term, the variable import of agricultural commodities had a negative and insignificant effect on economic growth. While in the long term, it had a negative and significant effect on economic growth in Indonesia for the period 1989 to 2019.
b. In the short term, the foreign direct investment (FDI) variable had a positive and insignificant effect. While in the long term, it had a negative and insignificant effect on the economic growth in Indonesia for the period 1989 to 2019.
c. In the short and long term, the exchange rate variable had a negative and significant influence on economic growth in Indonesia for the period 1989 to 2019.

From the results of the research above, the government must be more aggressive in carrying out policies to support farmer productivity by providing incentives for farmers in the form of production equipment and funds to support them. It is also needed to give them the protection so that local farmers can become the main supply in the domestic market by implementing restrictions from the government, so it can reduce imports of agricultural commodity products. If import activity can be suppressed , it will have a good impact on the rupiah exchange rate itself against other countries' currencies. Moreover, for FDI that enters Indonesia, the government must be selective about what businesses are established, whether it can participate in alleviating poverty by opening new fields or not. As we know that the investment can stimulate economic growth in the short term period by adding foreign capital, but it is quite worrying in the long term period if it only focuses on exploring the resources that exist in Indonesia, without helping to alleviate poverty by absorbing labor.

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