

## THE DETERMIANNT OF FOREIGN DIRECT INVESTMENT IN INDONESIA

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**Abstract:** This research is trying to figure out the determinant of foreign direct investment in Indonesia from the year 2011 to 2016. The research is going to include variable such as degree of openness, gross domestic product growth, gross domestic product per capita, and so on, as the variable that is deemed to be able to attract foreign direct investment. The data used for this research are collected from provinces across Indonesia. Hence, a panel data will be used in this research. In addition, a fixed effect regression method is employed in this research, as it is currently deemed as the most appropriate statistical analysis technique for this research. The result of this research is that the variable degree of openness is the only variable that is significant on affecting foreign direct investment, which has a negative value. Thus, this research concludes that the characteristic of inward foreign direct investment to Indonesia is tariff-jumping.

**Keywords:** Foreign direct investment, determinant of foreign direct investment, international economics, Indonesia.

### INTRODUCTION

The improvement of technology has also ease the movement of capital and investment for investors all over the globe. The collapse of financial border between countries and the increase in the international movement of capital has helped Foreign Direct Investment (FDI) in becoming a more common method for companies to raise the capital needed for the numerous projects.

Before the age of globalization and free flow of capital, firms are forced to find sources of capital from domestic investment and/or borrowing. This limitation may cause firms inability to increase their production by using other source of capital. Empirical research has found evidence in support of this view, as the increase in inward FDI movement has been

linked to the improvement in productivity (Kutan & Vuksic, 2007; Xu & Sheng, 2012) and total factor productivity (Li & Tanna, 2019). Furthermore, Zhang & Song (2001) also found that an increase in FDI would enable firms that could compete globally to increase their capital. Such findings has accentuate the importance of FDI in improving firms overall capacity and prowess.

The link between FDI and economic improvement does not stop there. Aside from the microeconomic aspect of increasing firms production, there are also macroeconomics impact of foreign direct investment. There is evidence of improvement of productivity in manufacturing and service industry from the inflow of FDI (Fernandes & Paunov, 2012). Researches has find evidence of an increase in export from countries that are linked to an

increase in FDI inflow (Xuan & Xing, 2008; Zhang & Song, 2001; Sun, 2001; Liu et al., 2002; Jawaid et al., 2016; Enimola, 2011; Rasiah et al., 2017). The effect of inward FDI has also created improvement in product efficiency or sophistication (Zhu & Fu, 2013), which creates a better production environment for firms. Lastly,

FDI has been proven to have a positive link with exports quality in the developing country (Harding & Javorcik, 2012). However, it seems that horizontal FDI is more effective in influencing the export as compared to vertical FDI (Beugelsdijk et al., 2008).

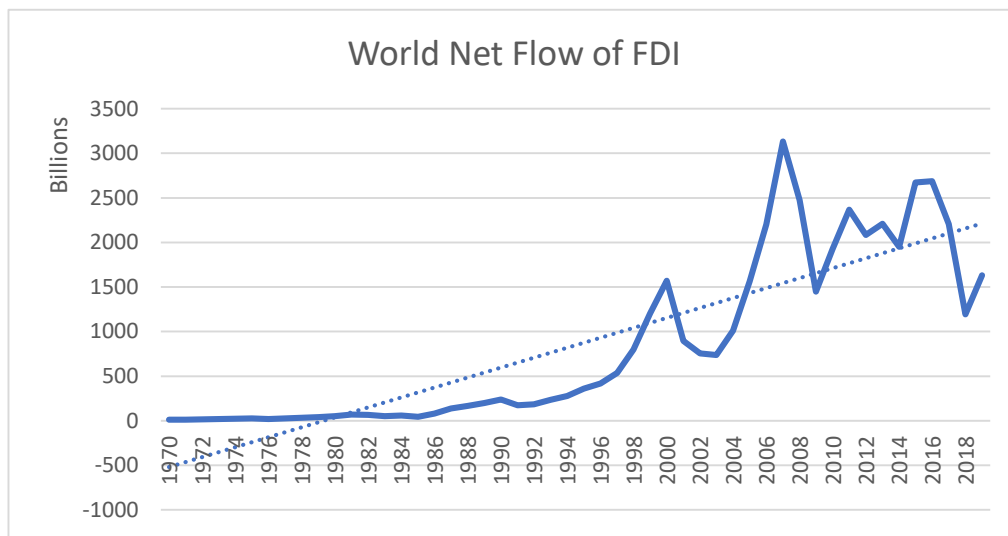


Figure 1 World Net Flow of FDI

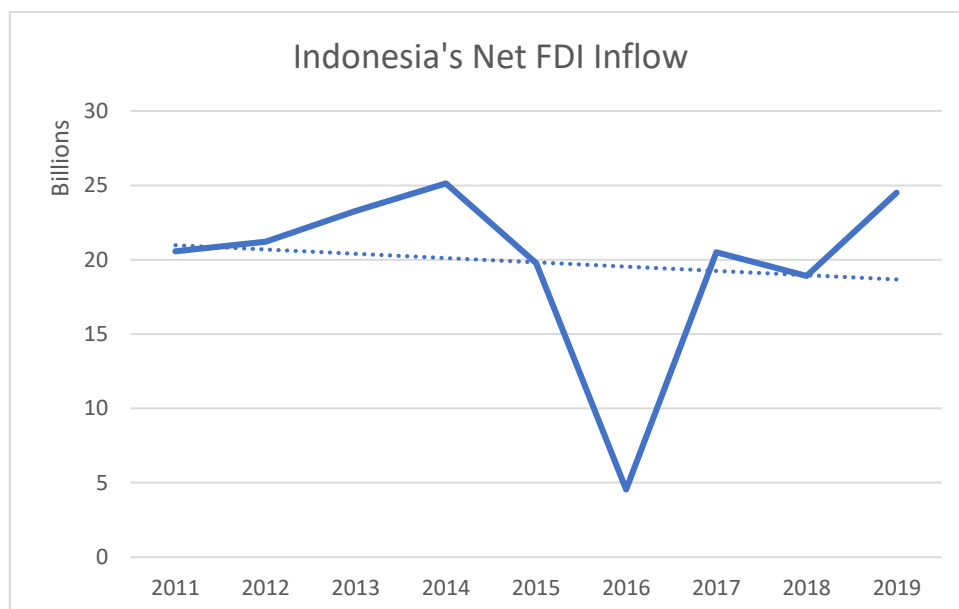


Figure 2. Indonesia's Net FDI Inflow

Figure 1 represents the amount of foreign direct investment made in the world from 1970-2019. The graph indicates that the net inflow of FDI around the world has increased by a detrimental amount. In fact, the amount of foreign direct investment made from 1970 has been multiplied by 132 times by the year of 2019. The positive trendline depicted inside the graph also suggest that increase in the world net inflow of FDI is to be expected. The graph above is a testament of the improvement in technology and the decrease in financial border that had made it easier for FDI to move from one country to another. However, a different set of trend could be seen from the inflow of foreign direct investment in Indonesia. As depicted in figure 2, Indonesia's FDI inflow suggest an increasing movement. Yet, the trend line in the graph is negative. This could insinuate that decreasing amount of FDI could be expected from the future FDI, despite the latest increasing FDI inflow in 2019.

The Indonesian government has gone above and beyond to create a better economic environment in order to attract FDI. It has introduced a deregulation of the Negative List, which is a policy that prevents FDI to target several strategic industries in Indonesia in order to protect both domestic investors and businesses, was enacted by the government of Indonesia. The Indonesian government closed 2 business lines permanently, which are business lines related to the distribution of sea coral and marine salvage, but opened up 45 new business lines for FDI. The aforementioned 45 business lines could be categorized into several sectors which are maritime and fishery, energy and mineral resources, industry, public work, trade, tourism and creative economy, transportation, communication and informatics, and health (Molina & Nugraha, 2016; Hadiputranto, Hadinoto & Partners, 2016). This deregulation was implemented in an effort to increase foreign direct Investment, and should be capable of doing so since He et al. (2013) found that there

is a significant interaction between financial deregulation and FDI. The impact of such improvement could be seen from the graph, with an increase in FDI after the year of 2016. However, the negative trendline still looms over the possibility of an improving net inflow of FDI.

The importance of FDI in improving Indonesia's economy has been made apparent by the evidence researches has proven and gathered. Hence, it is clear that it is in Indonesia's best interest to nurture its country by using FDI. While FDI is now ubiquitous, the method and characteristics that a country needs to attract it may vary. This varying characteristics that could determine the flow of FDI has prompted the need to further analyse the nature and what a country could do to maximize its potential. Hence, this research aims to explain the characteristics that could determine and attract the inflow of FDI to Indonesia.

This research would give a crucial benefit for the government of Indonesia in creating the most suitable policy to attract FDI. Variables used in this research could become core components that could potentially attract FDI. It is then up to the government of Indonesia to create a suitable economic policy that would help to improve this variables efficacy in attracting FDI. It will also contribute to the body of knowledge pertaining the determinant of foreign direct investment in a developing country.

### **FDI and Determinants**

Numerous determinants have been measured and used as a determinant of FDI inflow to a country. However, different researches usually uses different region/country, and with the use of those different region comes along different variables. Balakrishnan et al. (2013) uses energy endowment, oil price, Gross Domestic Product (GDP) per capita, openness to trade, and other variables as their determinant of FDI. Their research suggest that oil price, GDP per capita, and openness to trade are able to

attract an inward flow of FDI. Singhania & Gupta (2011) uses changes in GDP, openness to trade, inflation, interest rate, money growth, and scientific progress as the variables that determine FDI inflow. Their research found evidence that only GDP and inflation rate that could positively influence FDI inflow. Asiamah et al. (2019) that uses cointegration method to analyse the long-run and short-run impact of several variables influence on FDI inflow has found that FDP, electricity production, and telephone usage has a positive impact on the inflow of FDI. Lastly, Kumari & Sharma (2017) research has found that market size (represented by log of GDP), trade openness, interest rate, and human capital (represented by school enrolment) has been proven to be a determinant of FDI inflow.

While most of the variables stated above act as a variable that could attract FDI into a country, some research also found variables that could act otherwise. Balakrishnan et al. (2013) found evidence that energy endowment act as an obstacle to the inflow of FDI. Liu et al. (2014) found that wage has a negative influence on the inflow of FDI. Asiamah et al. (2019) found a more interesting evidence, where inflation, exchange rates, and interest rates have a negative correlation with FDI inflow. Singhania & Gupta (2011) also found that scientific research to negatively influence the amount of FDI inflow a country could have.

These polar opposite result of many researches could only points out to one conclusion, in that every country might have

different variable that could become the lead determinant of FDI inflow, while similar variables influence in FDI between countries might vary greatly. However, from these evidence clearly suggests that there are three main category of variables that might influence the inflow of FDI. Those categories are; macroeconomic factors, cost related factors, and investment environment improving factors. Within every research there are variables that will fall under this category, yet every country would have different variable that represents it. This research will also use variables that fall under this category. This research hopes that these categories might proven to be significant in influencing the flow of FDI.

**METHODS AND DATA**

This research will incorporate several variables that are deemed important as a determinant of FDI inflow to a country. As describe in the previous section, the variables included in this research would be categorized into three separate components which are macroeconomics factors, cost-related factors, and investment environment improving factors. Due to the availability of data, a lot of variables used in this research will mostly fall under the macroeconomic category. Nevertheless, these variables are expected to have a positive influence on the inflow of FDI. The table below will presents all the variables listed in the regression, and the explanation about the variables it self.

**Table 1 List and explanation of variables used in the research**

Variables Category	Variables	Definition
	$lnFDI_{i,t}$	Natural logarithm of foreign direct investment of province $i$ at time $t$
Macroeconomic	$lngdpcap_{i,t-1}$	Natural logarithm of gross domestic product per capita of province $i$ at time $t - 1$
	$lngdpgrowth_{i,t-1}$	Natural logarithm of real gross domestic product growth of province $i$ at time $t - 1$

	$lnFDI_{i,t-1}$	Natural logarithm of foreign direct investment of province $i$ at time $t - 1$
	$lnopen_{i,t-1}$	Natural logarithm of openness of the country computed by adding export to import and then dividing it with gross domestic product of province $i$ at time $t - 1$
	$lngovrat_{i,t-1}$	Natural logarithm of government budget balance divided by gross domestic product of province $i$ at time $t - 1$
Cost	$lnwage_{i,t}$	Natural logarithm of minimum wage of province $i$ at time $t - 1$
Investment Environment Improving	$pres_{i,t}$	dummy variable indicating which president is in power, in this case it is between Ir. Joko Widodo and Susilo Bambang Yudhoyono

This research will use a suitable regression technique in order to fully observe the relationship that these variables have. To attain the correct method of regression, this research will use a series of tests to prove the best regression method. The test utilized in this research to determine the correct regression

method will be the Breusch-Pagan LM test, F-test, and the Hausman test. Each specific test provides different information in which the researcher will use to decide what is the most suitable quantitative analysis method for this research.

**Table 2 Breusch-Pagan LM test result**

Test: $Var(u) = 0$
chibar2(01) = 0.00
Prob > chibar2 = 1.0000

The table below shows the result of the Breusch-Pagan LM test, where the researcher compared the suitability of Ordinary Least Square (OLS) quantitative analysis compared to the Random Effect regression (RE). The null hypothesis of the test is that RE would be the most suitable regression method for the

quantitative analysis. As the table shows, the researcher failed to reject the null hypothesis, in which the RE would be more suitable for the quantitative analysis.

**Table 3 F-test result**

$H_0 = \text{No Individual Effect}$	
F(7,92)	Prob>F
3.38	0,0092

The second test that the researcher used is the F-test. The purpose of this test is to compare the suitability of a Fixed Effect (FE) regression with OLS. The null hypothesis of this test stated that OLS is more suitable as the regression method. As shown on the table

above, the researcher is able to reject the null hypothesis. Hence, the researcher could conclude that the use of FE is more suitable than OLS as the quantitative analysis for this research.

**Table 4 Hausman test result**

Test: Ho: difference in coefficients not systematic
chi2(7) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 144.32
Prob>chi2 = 0.0000

However, since both the FE and RE is more suitable than OLS, a third test need to be used to compare the suitability of FE and RE regression. Hence the researcher uses Hausman test to compare the suitability of FE and RE regression for this research. The null hypothesis stated that RE would be a more suitable regression method for this research. As the table shows, the researcher is able to reject the null hypothesis, which means that this research will employ FE regression method. All in all, this research will utilize a Fixed Effect regression method, while using a panel data consisting of both the independent and the dependent variables.

Based on the regression technique to analyse this research, both the independent and dependent variables listed on table one would be rearrange into this regression equation below:

$$\begin{aligned}
 & \ln Fdi_{i,t} \\
 & = \alpha_i + \beta_1 \ln wage_{i,t} \\
 & + \beta_2 \ln gdp_{i,t-1} \\
 & + \beta_3 \ln gdp_{growth_{i,t-1}} \\
 & + \beta_4 \ln open_{i,t-1} \\
 & + \beta_5 \ln Fdi_{i,t-1} \\
 & + \beta_6 pres_{i,t} \\
 & + \ln govrat_{i,t-1} + \epsilon_{i,t}
 \end{aligned} \tag{1}$$

The description of each regression equation is the same as presented on table 1.

**EMPIRICAL RESULTS DISCUSSION**

After processing all the data using FE regression method, this research acquires the significant and coefficient of each independent variable included in the regression. the result of the regression and their significance are presented on table 5:

**Table 5 Regression result**

Variables	Estimated Coefficient	(t-statistics)
$lnwage_{i,t}$	-0.2235274	-0.47
$lngdpcap_{i,t-1}$	2.335056	1.53
$lngdpgrowth_{i,t-1}$	-0.0003347	-0.00
$lnopen_{i,t-1}$	-0.2176839	-2.61*
$lnFdi_{i,t-1}$	-0.0579396	-0.61
$pres_{i,t}$	-0.0651568	-0.37
$lngovrat_{i,t-1}$	0.1964184	0.34
Constant	-17.91218	-0.67
	Within	0.0843
R-squared	Between	0.1891
	Overall	0.1792

The signs \*\*\*, \*\*, \* above represents a significance of 1%, 5%, and 10% respectively. All coefficient are presented in percentage.

The table above shows that the overall r-squared of the regression is 0.1792, which means that the independent variables are able to explain the movement of FDI as much as 17.9 percent. Hence, the independent variables are strong enough to explain the movement of the dependent variable. The value of the F-statistics given by the regression analysis is 0.0092, and it is less than 0.01. I could conclude as well that the overall regression is significant.

However, since this research focuses on finding the best determinant of FDI, it is in fact has failed to do so. The coefficient of each independent variable that are mostly negative, which is the one of the reason of this research inability to determine the determinant of FDI. Minimum wage, GDP growth, Openness, previous amount of FDI inflow, and the dummy for president are negative. These variables are supposed to be able to create a positive influence towards the inflow of FDI, alas the result is the exact opposite.

There might be an explanation for this negative result. The minimum wage in Indonesia has been on the rise these recent years, hence it will surely increase the cost of production. This increase of production cost will surely create a possibility of a decrease in firms' production. A

decrease in firms production will then create a worsen economy in the future. The possibility of the worsening condition of the economy might deter all incoming FDI.

Since firms' decrease in production will also lead to a decrease in GDP, there is also a possibility where both the GDP and GDP growth worsen due to a decrease in production. The possibility of a decline in the future production is also portrayed in the negative coefficient of both GDP per capita and GDP growths. Hence both variables resemble more to the deterring factor instead of a determinant.

The amount of FDI before the introduction of the negative list is also lower, meaning that it might be seen as a deterring variable instead of becoming a determinant. The degree of openness might be compromised as well, since the increase in tax rate for trade was increasing by the years. Hence, the trade openness also unable to become the determinant of FDI. Lastly, changes in the helm of the presidency might not be well perceived by the market as an investment improving factor. This is proven by the negative coefficient displayed by the variable.

Furthermore, the variables displayed on the table above also shows one more interesting

result. The only variables significant in becoming the determinant of FDI is the trade openness. This result indicates that the trade openness of a country is the only variable that might significantly influence the inflow of FDI. Alas, since the coefficient of trade openness is also negative, the variable is unable to perform as the determinant of FDI inflow.

## CONCLUSION

This research provides three main conclusions from the result that has been previously discussed. These three main conclusions are taken out based on the significance and the coefficient that each independent variable has on the dependent variables. With regard to the determinant of the foreign direct investment, the first point the researcher would like to attenuate is the fact that the government efficiency in using its budget and the GDP per capita are the only variables in this research that could potentially become the determinant of FDI.

Both variables, whether it be the government efficiency in using its budget and the GDP per capita, yielded a positive coefficient based on the regression result. A positive coefficient acquired from the regression indicates the potential of these variables in becoming the determinant of FDI. However, both results are insignificant, meaning that the effect of the coefficient will not be different from zero. Hence, despite the positive impact it has on FDI inflow, the range of its influence could not be

determined. Despite its insignificance, the positive result could still be seen as a good indicator of the independent variable as a determinant.

The second point that could be concluded from this research is the degree of openness. The degree of openness itself is a proxy of the freedom of trade of a certain country, and in this case Indonesia. However, the regression result yielded a negative coefficient for this variable. This negative coefficient indicates that this variable is unable to become the determinant of FDI. Moreover, this could be seen as a deterrent variable for inward FDI inflow. Considering that this variable is significant, it is in the utmost importance to further treat this variable with care. With the negative coefficient value that this variable has, it might also indicate that the nature of inward FDI inflow to Indonesia is tariff jumping. Meaning that the tariff might play a bigger role in creating the negative coefficient for this variable.

Lastly, the significance of each variable in influencing FDI. As the regression result shows, the only significant variable that could influence FDI is the degree of openness. In a sense, the most common factor that is usually thought to be the determinant of FDI fails to properly explain the movement of FDI. Furthermore, most of the results have a negative coefficient, meaning that it would become a deterrent instead of a determinant of FDI. That being said, the researcher could safely conclude that there might be more appropriate variables that are able to become the determinant of and explain FDI inflow.



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