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Foreign Direct Investment and Economic Growth relationships: The moderation role of institutional quality

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Abstract

Most studies on the effect of the role of institutional quality on the relationship between foreign investment and economic growth have been carried out in Western countries. Very few studies on the above-mentioned relationships have been done in Asian countries during. This paper will be conducted in Asian countries using the following three models: Pooled OLS, Fixed effect model, and Random effect model. This paper uses secondary data from 10 Asian countries from 2011 to 2018. The empirical results show that (1): FDI has a positive effect on the economies of the countries. Asia between 2002 and 2018 (2) The quality of the state strengthens the impact of FDI on the economies of Asian countries between 2011 and 2018. These findings imply that if improving the quality of institutions, the state will attract more FDI and economic development

The research paper is based on the scientific approach of quantitative methods to solve the problems posed, practical and effective service for the completion of the research purpose. The secondary data collected from the worldbank.org to create asymmetric data tables will be processed on STATA software.

Keywords: Institutional quality, FDI, Economic growth

Introduction

The amount of FDI in ASEAN has increased dramatically from \$123 billion in 2018 to \$137 billion for 2019, according to recent reports (Figure 1). In 2018, inflows into Indonesia rose dramatically by five in 2018, from 3.9 billion to 23.1 billion dollars, three times as high as 9.1 billion dollars in Thailand, with 21 percent of the flows

Table 1: FDI flow in ASEAN from 2012 to 2019

	2011	2012	2013	2014	2015	2016	2017	2018
Brunei Darussalam	0.6	1.2	0.9	0.7	0.6	0.2	-0.2	0.5
Cambodia	0.8	0.9	1.6	1.3	1.7	1.7	2.3	2.7
Indonesia	13.8	19.2	19.1	18.4	21.8	16.6	3.9	23.1
Lao PDR	0.3	0.5	0.3	0.4	0.9	1.1	1.1	1.7
Malaysia	9.2	12	9.4	12.1	10.9	10.2	11.3	9.4
Myanmar	2.2	2.1	1.4	2.6	0.9	2.8	3	4.3
Philippines	1.3	1.8	2.8	3.9	5.8	5.6	8.3	10
Singapore	57.2	40	59.8	57.5	73.5	62.7	77.5	62
Thailand	14.7	2.5	12.9	15.9	5	8.9	3.1	9.1
Vietnam	8	7.5	8.4	8.9	9.2	11.7	12.6	14.1
ASEAN	108.2	87.7	116.5	121.7	130.3	121.7	122.8	137

(Source: ASEAN secretariat, ASEAN FDI database)

into the Philippines. Total FDI inflows to: Cambodia, the Lao People's Democratic Republic, Myanmar and Viet Nam (CMLV) increased to \$23 billion, approximately 17 percent of total FDI inflows of ASEAN. In four-member states CLMV countries, the inward-FDI into Vietnam accounts for 60 percent, which makes Vietnam stood in the

third-largest recipient in ASEAN. Brunei Darussalam has grown substantially from \$0.2 to \$0.5 billion in 2018. ASEAN 's share grew by 3% between 2017 and 2018 which FDI goes into East and South East Asia. A new high point of \$27 billion or around 19 percent of the area's total influxes was the main contributor to the FDI flows in the world.

Capitals from home countries concentrate on some emerging recipient industries, which are potential for the development of economic and society. These industries can be listed as research and development (R&D), health care and e-commerce (fintech). Countries with dynamic economies and increasingly rising community markets, such as automobile and appliances, are the primary target of this flow of capital.

However, a potential source from FDI is not only vital to ASEAN, but also to developing countries as nowadays, making the competition among recipient countries intense. The issue of consistently attracting new FDI source is especially important since core ASEAN economies such as Malaysia and Thailand are losing some of their costs advantages as wages and currencies are rising rapidly. Hence, businesses in Japan and other developed economies started to search for new ASEAN members (for example, Vietnam) as hosts in other East Asian countries and two rising economic forces (India and China). Thus, it is necessary for the ASEAN main economies, in comparison with their competitors, to look for new instruments.

ASEAN countries desperately need high quality institutions and effective governance systems to enable effective decision-making for the public sector (Rodrik et al., 2004). If done, the middle-income trap that demands the advancement of the quality of governance and institutions will be expected from ASEAN countries, notably Malaysia, Indonesia and Thailand. In other terms, if ASEAN countries improve their attempts to foster good governance or the institutions and make significant positive improvements in relation to China or other rival countries, they can be anticipated to achieve enormous and steady FDI inflows.

Materials and Methods

The relationship between economic growth and foreign direct investment (FDI)

Globalization has shifted to a broader opportunity for foreign trade and investment in the global economies. Recently, most developed countries have favored on foreign direct investment. Developing countries decided to open up their markets in the expectation of increasing their economies and provided opportunities for attiring international investment. The studies from Helpman and Grossman (1991); Barro and Sala-i-Martin (1997) have demonstrated that the endogenous growth model is a theoretical framework for such policies that indicates an FDI spillover to local firms and a positive impact on productivity and growth.

Endogenous growth theory which contributed by Romer (1986); Romer (1990); Aghion and Howitt (1992) emphasized that the improvement and innovation of technology is the primary of sustained economic growth. For instance, Romer (1990) applies a strategy that consolidates an industrial revolution can be seen as a source of economic growth. In order to increase both the quality and quantity of outputs, he suggests that research and development (R&D) give new ideas for increasing the quality of products from the first step is vital. Besides that FDI accidentally created competition in the domestic market which may cause strong efficiency of domestic companies (UNCTAD, 1999). Moreover, the appearance of foreign firms makes domestic firms imitate improving managerial practices. FDI requires a skilled workforce in domestic, it motivates the strengthening of human capital which contribute positive externalities to raise economic growth. In addition, FDI is one of the potential factors to enlarge opportunities in export markets.

Numerous channels process in the empirical framework of endogenous growth models. For more specific, FDI affects growth has noticed three primary channels. Firstly, receiving new inputs and technologies from FDI helps host countries can increase capital accumulation. (Dunning, 1993; Blomstrom et al., 1996; Borensztein et al. 1998). Secondly, foreign firms train domestic labor and manager to upgrade the skilled workforce. It helps improve the level of knowledge and skills in the host country (De Mello, 1996, 1999). Last but not least, foreign firms enter into domestic markets which reduce the market power of existing firms. And the high requirements of FDI increase competition between domestic firms to achieve it.

The significant element impacting a country's economic growth is the institutional quality of a government. Many studies examined the role of institutional quality in attracting FDIs (Bénassy-Quéré, Coupet, and Mayer 2005; Daude and Stein 2007; Ali, Fiess, and MacDonald 2010). In specific, the study approach of North & Thomas (1973) could be captured in a simple idea that Institutions will naturally lead to TFP, human capital, and also physical capital will also lead to economic development

Lipset (1959) argues that economic growth and its mechanisms, such as education extension, urbanisation and middle class formation, are changing institutions. In particular, Lipset highlights the part that these factors play in laying the basis for democracy. From this point of view, institutions will most probably be side shows or at least largely shaped or adapted to the social differences of education or urbanisation.

The impact of Institutional quality on attracting FDI inflow

There are numerous studies which provide evidence about the positive and significant impact of institutional quality on attracting FDI. Angel (2005) argues that different perspectives of the quality of institutions are mostly the key to attracting FDI investment. Busse and Hefeker (2007) finds out that institutions are highly significant factors in inducing foreign investment inflows. Wernick et al (2009) points out that institutional quality significantly and positively impacts on FDI. Bisson (2011) also supports that quality of some institutions in the host country also significantly and enormously affect on inward FDI. Following the same vein, rule of law and voice and accountability affect statistically and significantly FDI. Further more, Buchanan et al (2012) also argues that institutional quality has a positive and significant effect on FDI. Tintin (2013) also found a very interesting point is that institutions as measured by economic freedoms, state fragility, political rights and civil liberties indices economically and positively affect on FDI inflows.

The impact of Institutional quality on Economic growth

Furthermore, there are also several studies to do research on the relationship between institutional quality and economic growth. Firstly, Vieira et al (2013) by using panel data system GMM, cross-section analysis (LIML and GMM) found that there is a mixed evidence on the role of institutions and law and order perspectives of institution seem to be highly correlated with economic growth. Siddiqui and Ahmed (2013) by employing panel OLS and GMM based estimation finds that unfavorable institutions will negatively affect economic growth. Besides, Aparicio et al (2016) argues that Institutions will promote a positive effect of opportunity entrepreneurship on economic growth.

The moderation role of institutional quality on FDI-economic growth relationship

Finally, the main focus of this study is the moderation role of institutional quality on FDI-economic growth relationship. There are numerous interesting findings about this role of this relationship. Hssiao and Shen (2003) finds a positive impact of institutional quality on FDI-growth relationship. McCloud and Kumbhakar (2012) finds out that institutional quality enhances the degree of homogeneity in the FDI-growth relationship. Jude and Leveuge argues that institutional quality obviously enhances the positive effect of FDI on economic growth. Furthermore Ajide et al. (2014) proves two interesting findings that control of corruption, political stability and government effectiveness significantly affect on the relationship between FDI-economic growth; besides, the higher level of governance, the positive effect of governance on growth has larger magnitude. Adeleke (2014) also finds out that governance in African countries from 1996 to 2010 is quite weak thus prevents economic growth; furthermore, the interaction of governance and FDI has a positive impact on economic growth. Brahim and Rachdi (2014) argues that FDI and governance affects positively economic growth. Those effects will begin to manifest when the governance index reaches a level of -1.2. Okada and Samreth (2014) posits that the relationship between FDI and corruption plays a significant role in the effect of FDI on economic growth, and there is clear and present existence of a corruption index.

Methodology

Empirical model

Following the research of Hayat (2019), equations (1) and (2) below investigate the impact of FDI and institutional quality on economic growth and further how its role affecting the relationship of FDI-growth.

$$Y_{i,t} = \alpha Y_{i,t-1} + \beta_1 FDI_{i,t} + \beta_2 Instit + \beta_3 (FDI_{i,t} \times Instit) + \varepsilon_{it} \quad (1)$$

$$Y_{i,t} = \alpha Y_{i,t-1} + \beta_1 FDI_{i,t} + \beta_2 Instit + \beta_3 (FDI_{i,t} \times Instit) + \beta_4 X_{i,t} + \varepsilon_{it} \quad (2)$$

i represents the country

$Y_{i,t}$: the GDP per capita growth rate (%)

$Y_{i,t-1}$: the lagged value of GDP per capita growth rate (%)

FDI: foreign direct investment, net inflow

Inst: Institutional Quality – the average of six indicators: rule of law, control of corruption, political stability, government effectiveness, regulatory quality, voice and accountability

X : Representing control variables (trade openness, population density, human development)

$FDI_{i,t} \times Instit$: Representing the interaction between FDI and institutional quality

ε_{it} : the error term

Variables measurement

As mentioned before, a number of factors influence FDI-induced economic growth.

Human capital - From most previous studies, researches use education attainment measured by the average years of schooling (Barro and Lee, 2013) to indicate human capital. The greater enrollment ratios, the more increase human capital, which should be a positive correlation to economic growth (Gemmell, 1996). Borensztein et al. (1998), using aggregate data for sixty-nine developing countries, empirically examined the impact of human capital absorption on the relation between inward FDI and (per capita) output increase. Similarly, the link between FDI and economic growth has been investigated by other studies (Ford et al., 2008; Tu and Tan, 2012). However, due to the lack of data from average years of schooling in some countries, this study uses a human development index (HDI) includes various dimensions: health status, education outcome and GDP per capita, which has been used by Steven and Daniel (2002) to control both physical infrastructure and human capital.

Institutional quality - Many researchers believe that secure property rights and a strong legal system are important for economic growth. Institutional quality represents average of six different institutions: Rule of Law, Government Efficiency, Regulatory Quality, Control of Corruption, Political Stability and Voice and Accountability. This report brings into consideration both the WGI institutional quality and governance indicators: rule of law and control of corruption have a positive and statistically significant effect on growth. These indices vary from -2,5 to +2,5 where -2,5 is attributed to poor institutional efficiency and governance, and +2,5 to good institutional efficiency and governance.

Trade Openness - measured in term of the sum of import and export divided GDP, filtered for the estimated relation of this ratio to country size. Assuming that trade openness variable is beneficial to economic growth; a significantly positive coefficient on growth is estimated (Chang and Mendy, 2012)

Table 2: Summary of variables measurements

Variables	Code	Unit	Source	Expected sign
GDP per capita growth	(GDPPC growth)	% annual	World Bank	Dependent Variables
<i>Independent Variable</i>				
Foreign Direct Investment	FDI	% of GDP	World Bank	+/-
Institutional Quality	Inst	The range of governance performance from approximately 2.5 (weak) to 2.5 (strong). Average of six governance indicators: Rule of Law, Control of Corruption, Regulatory Quality, Voice and Accountability, Political Stability, and Government Effectiveness	Worldwide Governance Indicators (WGI)	+
<i>Control Variables</i>				
Human capital	HDI	% annual	United Nations Development Programme	+
Trade Openness	T	% of GDP	World Bank	+
Population density	P	People per square kilometers of land	World Bank	

Results and Discussion

Results:

Discussion

Descriptive Statistic

Table 4 below represents the descriptive statistic for all variables that affect economic growth in this paper. All variables will be described in the original values with different units before transformed into data-cleansed.

According to the table, there are a total of 160 observations, which is strongly balanced. FDI has an average value of 5.36%, min value is -1.32, and max is 28.02, which can be seen that there is a large distinction between each country in attracting FDI. Over the period from 2002 to 2017, FDI took an average of 5.36% of GDP. This indicates that FDI was a big source of funding for the growth of ASEAN countries. The same is true for Population density and Trade openness, the gap between the minimum and maximum value is extremely large. Especially, Population Density has the largest value for mean and standard deviation. The huge gap between mean (823.41) and standard deviation (2089.06) of the Population Density variable shown that the population distribution per square km in ASEAN countries is uneven from 2002 to 2017. With GDP per capita growth which is a dependent

variable, has the mean value been 4.35 and the standard deviation was 3.22. Due to the uneven population distribution in ASEAN countries, using GDP per capita as a dependent variable is suitable to calculate a country standard of living for this paper than GDP account. GDP per capita is calculated by GDP/Population to measure correctly how much citizen's benefit from the development of their country's economy. The descriptive statistics suggest that ASEAN countries are opening to the global trade, with the trade openness averaging 127.5% of GDP. Human capital, which is measured by HDI, indicates a mean of 0.68. A mean of Human capital index in ASEAN countries is above 50%, which shows that the human capital in ASEAN is not too worrisome. According to Kaufmann et al. (2010), there are six indicators to measure institutional quality including rule of law, control of corruption, government effectiveness, voice and accountability, regulatory quality, and political stability. Six indicators are estimated in the range from approximately -2.5 (weak) to 2.5 (strong) of government performance. An Institutional Quality variable is proxied by an average of six different governance indicators according to Hayat (2019). The result shows that institutional quality is mostly weak in ASEAN countries.

Table 3: Descriptive Statistics

Variables	Unit	Observations	Mean	Standard deviation	Min	Max
GDPPC growth	annual %	160	4.35	3.22	-3.62	12.79
FDI net inflows	% of GDP	160	5.36	5.74	-1.32	28.02
Institutional Quality	index	160	-0.24	0.83	-1.75	1.62
Rule of Law	index	160	-0.24	0.9	-1.74	1.83
Control of corruption	index	160	-0.29	1.01	-1.67	2.33
Voice and accountability	index	160	-0.77	0.69	-2.23	0.32
Regulatory quality	index	160	-0.07	1.03	-2.34	2.26
Political stability	index	160	-0.18	0.93	-2.09	1.62
Government effectiveness	index	160	0.09	1.02	-1.62	2.44
Human capital	annual %	160	0.68	0.13	0.44	0.93
Population density	people/squared km	160	823.41	2089.06	23.8	7915.73
Trade openness	% of GDP	160	127.5	94.89	0.17	437.33

Correlation Matrix

The correlation matrix was collected to analyze the potential degree of interaction between the variables. Table 5 below examines the correlation matrix between variables which use in this paper. The correlation table shows the direction of the relationship between each variable. Specifically, there is only FDI is positively correlated with GDPPC Growth. The coefficient is 0.095. This positive GDPPC Growth-FDI relationship indicates that a rise in foreign investment contributes to economic growth. On the other hand, the remaining variables are correlated negatively with GDPPC growth. However, the correlation matrix table shows that these variables have a positive correlation with FDI. The correlation table also indicates that the relationship between institutions indicators: rule of law, control of corruption, voice and accountability, regulatory quality, political stability, and government effectiveness are high correlation.

Table 4: Correlation Matrix

	<i>GDPPC Growth</i>	<i>FDI</i>	<i>Human capital</i>	<i>Population density</i>	<i>Trade Openness</i>	<i>Institutional Quality</i>
GDPPC Growth	1					
FDI	0.0954	1				
Human capital	-0.6101	0.3565	1			
Population density	-0.0914	0.8046	0.5824	1		
Trade Openness	-0.1932	0.7525	0.6454	0.8529	1	
Institutional Quality	-0.5308	0.5146	0.9382	0.7086	0.8020	1

4.3 Panel Regression

In panel data analysis, besides using Pooled OLS model regression, the Fixed Effect and Random Effect model also use as optimal models. In this paper, a Hausman test will be used first to choose which model is more suitable between Random Effect and Fixed Effect. With the null hypothesis is the Random Effect is more prefer, and the alternative hypothesis is the Fixed Effect should be chosen.

H_0 : There is no correlation between independent variables and error term

H_1 : There is correlation between independent variables and error term

If the test has a p-value is below 0.05, the regression should reject the null hypothesis and choose the fixed effect model. If the test receives a result show that p-value > 0.05, choosing the Random effect model is suitable. Continuously, if the Hausman test gives the result of choosing the Random effect, we use Breusch and Pagan Lagrangian test to choose between the Pooled OLS and the Random effect which is the most optimal.

H_0 : The Pooled OLS is preferred

H_1 : The Random Effect Model is proper

Regression analysis

In equation 1 and 2, we will use an institutional quality variable which is proxied by an average of six difference governance indicators to check if institutional quality has an influence on ASEAN countries' economic growth. In addition, equation (1) and (2) investigate the impact of FDI on economic growth and whether institutional quality may affect the relationship between FDI and economic growth or not.

In equation (1), three models: Pooled OLS (POLS), Fixed Effect Model (FEM), and Random Effect Model (REM) will be employed. Then, the Hausman test is applied to test first to choose between the Fixed Effect and Random Effect model which is suitable. The Hausman test gives a p-value of 0.0009 which is below a 5% significance level (Appendix 1). Thus, the null hypothesis indicates the difference in coefficients is not systematic and must be rejected in this case. In addition, the Breusch Pagan LM test will be tested between the Pooled OLS and Random Effect Model, the result accepts the null hypothesis, then, the Pooled OLS is appropriate (Appendix 2). Therefore, the Fixed Effect model is the most suitable for model 1. However, after choosing Fixed Effect Model, to control for heteroskedasticity, the command in STATA run three models will be added the option "robust": vce (robust). The results run in STATA will be analyzed in Appendix 3,4,5. In equation (1), Institutional quality which is an average of six governance indicators: Rule of Law, Regulatory Quality, Government Effectiveness, Control of Corruption, Political Stability, and Voice and Accountability will be applied to an equation. The institutional quality variable is measured according to Hayat (2019). In addition, there also has an interaction term between institutional quality and FDI net inflows (INS*FDI). It can be estimated the impact of institutional quality on the relationship between FDI and economic growth. The results are presented in Table 6. The R-squared of model 1 in FEM is 21.22% which indicates the independent variables explain approximately 21% the change of GDPPC

Growth. The results show that FDI has a significantly positive impact on economic growth ($\beta=1.05$, a p-value=0.00 has significant at 1% significant level). This is not too surprising as FDI is one of the most capitals on the growth of ASEAN countries. It also means that FDI is vital for the development of ASEAN countries' economies. This result is very much in line with the most popular studies on the role of FDI in enhancing economic. The lagged value of GDP per capita growth in the model also shows positive and significant ($\beta=0.215$, p-value=0.084), indicating that the economies that grew more quickly last year also grow more quickly in the following year. An interaction term between FDI and Institutional Quality has a result the same as expected. It has a significantly positive impact on GDPPC Growth - a dependent variable that is proxied for economic growth ($\beta=1.61$, p-value=0.021). It means that Institutional Quality has a positive effect on the relationship between FDI and Economic Growth in the context of ASEAN countries. This has been proved in previous studies, with sustainable institutions environment in host countries, home countries willing to invest more in it. Therefore, it is clear to see that the role of institutional quality help attracts more FDI to enhance economic growth. However, model 1 gives a result that there is a significantly negative impact of institutional quality on economic growth ($\beta=-3.823$, p-value=0.039). A negative relationship between institutional quality and economic growth indicates that if the institutional quality does not meet the threshold, it will make a converse effect. It is consistent with Zouhaier and Karim (2012) that the negative coefficient of institutional quality may propose that the development of economies require a long-term stable institutional environment. It was still a difficult challenge for ASEAN countries with low institutional index. This argument result can be explained that the diffusion of FDI may gain a greater incentive for improving institutions in low-quality institutional countries, which lead to support economic growth positively.

Table 5: Regression (1) results
Dependent variable: GDPPC growth

Variables	Pooled OLS	FEM	REM
GDPPC growth_L1	0.27**	0.215*	0.27**
FDI net inflows	1.05***	1.31***	1.05***
Institutional Quality	-3.896***	-3.823**	-3.896***
(FDI net inflows x Institutional Quality)	1.077***	1.61**	1.077***
_cons	0.96**	0.916	0.959**
Prob>F	0.00	0.0086	0.00
R-squared	0.5918	0.2122	0.1965
Observations	148	148	148
Hausman test	Pro>chi2=0.00		
Breusch Pagan LM test for Random Effect (p-value)	Pro>chi2=1.00		

Notes: ***, **, and * indicate 1%, 5%, and 10% of significant level.

Similar to equation (1), equation (2) is also applied with Pooled OLS (PLS), Fixed Effect Model (FEM), and Random Effect Model (REM). Next, two tests will be run to choose the most suitable model for regression. The Hausman test gives the result with a p-value is 0.00 below 5% significance level. The null hypothesis is no correlation between the error term and the independent variable, which means the random effect is preferred. However, with the p-value in the Hausman test the null hypothesis is rejected in this model (Appendix 6). Moreover, I continue with the Breusch and Pagan LM test for Random Effect, the result suggests that the null hypothesis is accepted (Appendix 7). Therefore, the Fixed Effect model is the most appropriate for equation (2). Moreover, to accept the assumption of panel data analysis: there is no appearance of heteroskedasticity. The command to run 3 models in STATA will be added "vce (robust)" to control for heteroskedasticity phenomenon and illustrated

in Appendix 8,9,10. Adding control variables: human capital, population density, and trade openness to equation (1), I have equation (2) to compare results. The results of three robust models in equation (2) will be presented in model 2 in Table 7. In addition, after adding control variables the R-squared of FEM in equation 2 has increased to 27.66%. It makes estimation more accurate and a relationship between the dependent and independent variables is tight. In model 2, I also gain the result of FDI as an expectation. FDI has a significantly positive influence on economic growth and at a 1% significant level ($\beta=1.415$, $p\text{-value}=0.011$). After 2 models, in this paper, FDI has been proved its diffusion into recipient countries brought many advantages that help enhance ASEAN countries' economies. This result is consistent with the study of Li and Liu (2005). These authors stated that FDI and economic growth have dependent on each other, and FDI can promote an economic indirect, and direct way. Moreover, the interaction term between FDI and Institutional Quality still has a positive effect on economic growth with a coefficient of 1.318, $p\text{-value}=0.071$ at a 10% significance level. It states that adjusted institutions to sustainable plays an important role in attracting foreign investment to host countries. It is consistent with Jude and Levieque (2013) studies, Institutional Quality has modulated the positive influence FDI-led growth; therefore; the reform for the institutional environment should be primary in ASEAN countries in order to attract FDI. In equation (1), almost variable results are similar among the three models. However, in equation (2), among the three models, institutional quality, human capital, and the lag of GDPPC Growth have a negative coefficient but insignificant.

Table 6: Regression (2) results

Dependent variable: GDPPC growth

Variables	Pooled OLS	FEM	REM
GDPPC growth_L1	0.24**	0.142	0.24**
FDI net inflows	0.94***	1.415**	0.943***
Institutional Quality	-1.97	-0.762	-1.976**
(FDI net inflows x Institutional Quality)	1.009***	1.318*	1.009**
Human capital	-10.8*	-16.791	-10.8***
Population density	0.057	-3.877	0.06
Trade openness	-0.084	-0.265	-0.084
_cons	0.96**	35.776	9.64**
Pro>F	0.000	0.0002	0.000
R-squared	0.6036	0.2766	0.2436
Observations	148	148	148
Hausman test	Pro> chi2=0.00		
Breusch Pagan LM test for Random Effect (p-value)	Pro> chi2= 1.00		

Notes: ***, **, and * indicate 1%, 5%, and 10% of significant level.

Main Text (Review only)

This section may be divided into subsections or may be combined.

Conclusions

This paper investigates the impact of foreign direct investment and institutional quality on economic growth; and the role of institutional quality altering on FDI-Growth nexus. This paper focuses on examining in 10 ASEAN countries from 2003 to 2018. By using panel data, three models Pooled OLS, Fixed Effect Model, and Random Effect Model are used to analyze.

According to previous researches, FDI has been investigated to be a boosted engine to enhance economies. In this paper, I expect FDI to have a positive impact on growth and it gained an expectation. FDI has proved it as a potential source capital flows into ASEAN countries which help their economies growing better. However, from the advantages of FDI brings to developing countries, it has created intense competition between recipient countries. Therefore, as mentioned above, ASEAN countries need to improve their institutional quality to be a comparative advantage over their competitors. In this paper, I expect the interaction term between FDI and institutional quality to be positive and the result has satisfied it. I tested with and without the participation of control variables: human capital, trade openness, and population density. Both results indicated that the interaction term between FDI and Institutional is statistically significant and positive. It means that the role of institutions has affected the relationship between FDI and economic growth. This improved institutional quality would boost the country's economic growth and contribute to FDI and raise economic development led by FDI. The stability of the institutional environment in recipient countries will attract more FDI from home countries.

However, in this paper institutional quality shows a negative and significant result on economic growth in equation (1). In equation (2), with control variables, institutions show a negative impact but insignificant on economic growth. Indeed, the low impact of institutional qualities suggests that ASEAN countries have yet to take this seriously and that future results may differ. This is because institutional quality could also be the cost of doing business, and improvements could certainly reverse ASEAN inflows. Moreover, economic growth also requires an institutional quality to reach a threshold and a longterm stable institutional environment (Zouhaier and Karim (2012)). The fact that the threshold occurs means that FDI inhibits economic development in countries under the threshold of institutional quality and encourages economic growth in countries above it. In addition, human capital also shows a different result as expected. Because ASEAN countries have just focused on capital flows more than efficient labor, it leads to a result that human capital in mostly ASEAN countries has not met the threshold. In brief, too low-knowledge labor will inhibit the diffusion of FDI in the recipient countries. As nowadays, home countries tend to shift to investment in R&D, and they need a high-educated workforce to adapt with modern technology.

From these above results, ASEAN countries should start improving their institutional quality besides attracting FDI which will enable them to grow and sustain economies. Depending on different government policies, each policymaker should careful and cautious in adjusting their own framework before implementing policies to attract FDI enhancing economic growth. ASEAN countries still must improve their institutions to reach the requirement of a threshold; therefore, it would take an opportunity to compete effectively with other economies.

Data Availability (excluding Review articles)

This section should describe how readers may access the data underlying the findings of the study.

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