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THE IMPACT OF TAX CUT ON FOREIGN DIRECT INVESTMENT: A CASE STUDY IN SOUTHEAST ASIAN COUNTRIES

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ABSTRACT

In this paper, we have examined the impact of tax cut on foreign direct investment (FDI) in Southeast Asian countries as a response to the debatable issue of the relationship between tax cut policy and FDI. We use corruption perception index and government effectiveness as the control variable, as well as other economic and demographic variables such as GDP growth, tax revenue, inflation, unemployment and population growth. Using Fixed Effect Model on panel data for a period of 1997-2016 adopted from World Bank, UNCTAD, and various websites, our findings suggest that in Southeast Asian countries, even though corporate tax cut policy gives a negative effect on FDI, this tax cut policy is not the main factor that induce investors. It is trade openness and GDP growth which become the reasons for investors to invest in this region. Moreover, the effect of government performance has played pivotal role in attracting FDI inflows.

Dalam paper ini, kami meneliti pengaruh pemotongan tarif pajak terhadap Investasi Modal Asing/Foreign Direct Investment (FDI) di negara-negara Asia Tenggara sebagai respon atas perdebatan para ekonom atas hubungan kebijakan pajak dengan FDI. Dalam paper ini, kami menggunakan persepsi tingkat korupsi suatu negara dan efektifitas pemerintah sebagai variable kontrol untuk melengkapi variabel ekonomi dan variable demografi, seperti pertumbuhan GDP, penerimaan pajak, inflasi, pengangguran dan pertumbuhan penduduk. Dengan menggunakan panel data Fixed Effect Model untuk kurun waktu 1997-2016 yang diadopsi dari Bank Dunia dan UNCTAD, hasil studi ini menyimpulkan bahwa di negara-negara Asia Tenggara, pemotongan tarif pajak memberikan kontraksi terhadap pertumbuhan FDI. Di kawasan ini, keterbukaan perdagangan dan pertumbuhan GDP merupakan faktor pendorong masuknya investor asing, dimana efektifitas pemerintah sebagai motor utamanya.

1. INTRODUCTION

Currently, countries are competing to each other on attracting the investors. Governments have introduced several policy instruments to get as much investments as possible to their own country. The foreign investors are the main target of these specific instruments because the foreign direct investment (FDI) inflow to the host country is empirically proven to give positive impact to its economic performance. However, to induce foreign investors to invest in the host country is for sure challenging. Those investors determine whether to invest or not by having some sort of things to consider, one of them is the tax rate of the host country.

The impact of taxation on investment has been hotly debated both in academic and political circles. First group of economists believe that corporate tax cut will increase investments. Ferede & Dahlby (2012) suggested that tax cut can reduce the capital cost and raise incentives to invest. However, the second group argues that corporate tax cut in today's economy will have no significant consequence on investment. This group believes that the resultant of the risen of economic concentration in today's economy is the key part of this insignificant effect of corporate tax cut.

Even though the role of tax is still the subject to discussion among scholars, but this tax scheme still plays a pivotal role to attract the foreign investors. For many cases, the corporate tax rate of the host country is one of the main considerations for the foreign investors to invest. To respond this issue, many host countries set their corporate tax rate lower than others. They expect positive economic growth from the increasing investments as the impact of tax cut policy (Ferede & Dahlby, 2012). This policy is commonly applied if the main goal is to attract FDI and to lower the distortions that hold back the level of domestic investment as well.

Such tax scheme, however, may affect the economic performance of one country differently due to its economic size (Winner, 2005). Using Generalized Method Moment (GMM) Model, Winner (2005) studied the impact of tax regime on the large and small economy. Out of 23 OECD countries during 1965 – 2000 period, he found that larger economies enjoy positive impact of tax policy through the escalating value of capital accumulation. In contrast, for small economies, the tax regime induces tax competition and may degrade the value of capital inflow.

The role of taxes, through the tax rate in determining the FDI inflow depends on its type (Jayasuriya, 2011). However, it is the corporate income tax that has been widely investigated by most scholars (i.e. Abdioglu, Binis, & Arslan, 2016; Becker, Fuest, & Riedel, 2012; Egger & Raff, 2015; Jayasuriya, 2011)and--if so--how they react to changes in other countries' tax rates and bases. Specifically, we estimate the slopes of tax policy reaction functions and examine how marginal changes in trade costs and GDP affect tax policies in the Nash equilibrium. The estimated slopes and comparative static effects can be rationalized in a model in which governments compete for foreign direct investment (FDI. Focusing on corporate tax cut, Becker *et al*. (2012) investigate the effect of tax cut on FDI in 22 European countries. Using Fixed Effect Model for the period of 2000 to 2006, they conclude that tax rate positively affects the quantity of capital stock.

Considering European countries as large economy, we move our attention to the small economy. Southeast Asian countries is a group of country worth to study in this objective. This group has been experiencing corporate tax rate reduction for the last twenty years. In fact, this is the only region where almost all of its members apply such policy. Historically, the first country to have corporate tax cut was Malaysia and Philippine in 1998. Malaysia's corporate tax rate was reduced from 30% to 28%, while Philippine reduced from 35% to 34%. Singapore is considered as the most often one to reduce its corporate tax rate, from 26% in 2001 up to 17% in 2010. In 2008, Indonesia, and Vietnam reduced their corporate tax rate as well. Indonesia's corporate tax rate was degraded from 30% to 25%, while Vietnam had reduced their corporate tax rate several times from 35% to 20% in 2016. Thailand and Laos were the last countries to reduce the rate of their corporate tax rate in 2012 from 30% to 20%, and from 35 % to 24% respectively. The summary data can be seen in figure 1.

It seems that the effect of tax cut regime in this area follow the conclusion of Winner (2005) in which tax cut leads to tax competition among small economies that may distort economic performance. In addition, for countries where tax revenue as the primary source of national income, tax cut will likely create more budgetary deficit and higher interest rate that will affect both investment, and economic growth negatively (Zidar, 2015). In that case, Southeast Asian countries are part of this tax dependent group with the average tax revenue to GDP ratio in 2016 is more than 11%, for example Indonesia (10,3%), Malaysia (14,2%), Singapore (14,3%), Philippines (13,7%) and Thailand (15,7%). Due to that reason, the influence of corporate tax cut on FDI in Southeast Asian countries is interesting to be discussed.

From the aforementioned importance of tax cut on FDI and due to the little agreement among economists on the effect of tax cut and FDI, in this paper we will discuss the issue of how corporate tax cut affect the FDI in Southeast Asian countries. We have mentioned some articles about the effect of tax cut on FDI, however, this topic has rarely been discussed in Southeast Asian countries. Focusing on corporate tax cut, how much does this fiscal policy affect the investment in Southeast Asian countries? To fill the gap of the previous researchers, we will use more contemporary data to better illustrate the effect of tax cut on FDI in

current years in this area.

This paper will use data from 1997 to 2016, when most countries in this region have started to implement the corporate tax cut policy. We will use the ratio of FDI to GDP as the dependent variable, and corporate tax cut as our interested independent variables. We will also estimate the effect of tax revenue, GDP growth, inflation, unemployment, and population growth as independent variables to FDI. In addition, to have a better estimation result, we use Corruption Perceptions Index (CPI), and Government Effectiveness (GE) as control variables.

In this study, Southeast Asian countries will be grouped into two groups. One group is the countries that have already implemented tax cut policy, while the other group is the countries with no tax cut policy experience. The first group is our main objective. Moreover, in the regression data, we will run our data twice for each group based on the type of government performance. Firstly, we will run our data using CPI as the control variable, and secondly, we will use GE. We need to treat these two variables differently since they may give distinct effect on our dependent variable.

Expanding the previous studies of the effect of taxes on FDI in the large economies, this study will give a wider view of the effect of tax cut on FDI in the small economies using the most recent datasets. Moreover, this study also gives a different perspective of how institutions performance of one country may also alter the effect of this fiscal instrument.

2. LITERATURE REVIEW

OECD defines FDI as a cross-border investment where an investor from one country establishes a long-term interest in and/or a substantial degree of influence over a company in another country. The flow of FDI is motivated by three reasons, which are ownership-specific aspects based on its tangible and intangible assets; internalization aspects because of its value-added control in multiple location and countries; and location-specific aspects, resulting from the local endowments, economic situations and government policies, such as investment and tax regulation, intellectual property protection, and labor regulation (Baccini, Li, & Mirkina, 2014). In this matter, taxes may influence all those three types of aspects for taxes are imposed in all those three in the name of property tax, value-added tax and income tax. Therefore, the role of taxes become more pronounce to the flow of capital as they reduce the net returns to any investors.

Generally, the role of taxes on determining FDI inflow can be viewed under two aspects, which are the economic factors and institutional factors. While as economic factors, tax determines the flow of FDI through its rate, as institutional factors, it affects FDI inflows via its administrative obligations. Both aspects show their impact on FDI inflows through cost and productivity as it is the basic element for investors to consider before they decide to invest (Krugman *et al*., 2012). Thus, for countries to induce more investment, the economic and institutional reform is vital.

The influence of corporate reform on the economy will be determined by how the reform affects decisions to increase investment by adding the capital stock. The decisions to invest are based on the investor's expected return on investment, specifically the after-tax return. The investors will take into account all the tax effects on income, not only the individual income taxes, but also the corporate tax. This corporate tax system will influence net corporate profits, which affect investors' future wealth and returns from the investments (Auten, Carroll, & Gee, 2008). Thus, tax system strongly affects investment.

Furthermore, investment is affected by taxes through their impacts on factor of accumulation and total factor of productivity (Ferede & Dahlby, 2012). Focusing on the factor accumulation, the cost of capital will be raised by implementing taxes, and reduce the incentives to invest. Thus, higher tax rates will dismay investment. Moreover, Auten et al., (2008) suggested that in the corporate sector, high tax rates tend to discourage investment and will probably lead to several economic distortions. Thus, taxes can twist capital allocation and reduce the productivity of overall investment.

In addition, tax cut policy will increase investment, especially FDI (Devereux & Griffith, 2002). In order to foster FDI, both developed and developing countries set fiscal incentives especially tax instruments, such as tax holidays, tax amnesty, tax exemptions and tax cut.

Corporate tax cut is the one that has been the most popular instrument in international platform to induce foreign investors. Consequently, the race-to-the-bottom trend has been emerged. Moreover, since countries tax regimes are influenced by the integration of international tax in which one country may set its tax policies as a response to its neighbor countries tax policies, international tax competition has shown its existence (Heinemann, Overesch, & Rincke, 2010).

2.1. FDI determinants

Scholars have been examined the determinants of FDI for many years, however there are still no consensus among them all. This means that there is no general acceptance of the explanatory variables that can be rewarded as the "true" determinants of FDI (Kok & Ersoy, 2009). For this study, we will use the determinants of FDI as follows:

- *Corporate Tax Rate (TAX):* It is the rate of corporate tax in the countries.
- *Tax Revenue (REV):* It defines as the total tax revenue as a percentage of GDP.

- *GDP Growth (GDP):* It indicates the annual growth rate of GDP.
- *Openness (OPEN):* It is the trade ratio (export and imports ratio) to GDP.
- *Population growth (POP):* It illustrates the growth rate of midyear population from year t-1 to t.
- *Inflation (INF):* It shows the Consumer Prices Index annual growth rates. It captures the lack of monetary control within a country.
- *Unemployment (UNEMP):* It refers to the labor force proportion that is with no work but available for and seeking employment (World Bank definition).
- *Corruption Perceptions Index (CPI):* It defines as the private's benefit gained from the misemployment of public power.
- *Government Effectiveness (GE):* It is the perception of the quality of government's commitment to apply effective policies in public services, and civil services.

2.2. Empirical Overview

Countries' fiscal policies are determined by the capital volatility and the openness of their economy (Ghinamo, Panteghini, & Revelli, 2010). Investigating the impact of tax rate, the credibility of government and the flow of capital, Ghinamo, Panteghini, & Revelli (2010) found that the government's credibility is the main driver of capital flow. Low credibility leads to capital outflow because it puts the investment at high risk. Consequently, tax cut policy is introduced that aims to counter the possible income shifting opportunities.

The previous studies conducted to assess the effect of this corporate tax cut on FDI concluded that FDI is positively correlated with corporate tax cut (i.e. Djankov et al., 2009). Egger & Raff (2015)and--if so--how they react to changes in other countries' tax rates and bases. Specifically, we estimate the slopes of tax policy reaction functions and examine how marginal changes in trade costs and GDP affect tax policies in the Nash equilibrium. The estimated slopes and comparative static effects can be rationalized in a model in which governments compete for foreign direct investment (FDI analyze the effect of corporate tax cut on FDI inflows in 43 developed and emerging countries over the period 1982-2005. The results conclude that degradation of the FDI tend to affects the reduction in corporate tax rates significantly.

Abdioglu, Binis, & Arslan (2016) focus on the impact of tax policies on FDI in OECD countries. They group the countries between countries with tax cut policy and those who don't. They examine the relation between those two group of countries over the sets of time-series analysis. Their results show that taxes have a significant impact on FDI. In addition, they find that tax policies have various impact on FDI across countries in which high tax rates and FDI have a negative relationship.

2.3. Hypotheses

Corporate tax rate is likely to give negative effect on FDI because high corporate tax will give disincentive to invest. Abdioglu *et al*., (2016); Egger & Raff (2015) *and--if so--how they react to changes in other countries' tax rates and bases. Specifically, we estimate the slopes of tax policy reaction functions and examine how marginal changes in trade costs and GDP affect tax policies in the Nash equilibrium. The estimated slopes and comparative static effects can be rationalized in a model in which governments compete for foreign direct investment (FDI* report that tax cut attracts foreign investors, thus, FDI inflows will have positive trend. In contrast, tax revenue positively affects FDI. Gropp & Kosital (2000) find a positive correlation between FDI and tax revenue. This is due to the increasing of the domestic capital stock as the impact of FDI inflows.

GDP growth plays an essential role on attracting FDI. When foreign investors relocate their investment, they take into account the prospects of growth of the host country (Morrissey and Rai, 1995). Even though some studies find a positive relation between GDP growth and FDI (i.e. Abdioglu et al., 2016; Egger & Raff, 2015)and--if so--how they react to changes in other countries' tax rates and bases. Specifically, we estimate the slopes of tax policy reaction functions and examine how marginal changes in trade costs and GDP affect tax policies in the Nash equilibrium. The estimated slopes and comparative static effects can be rationalized in a model in which governments compete for foreign direct investment (FDI, there is another part of the literature that counter this view. For example, Nigh (1985) finds that economic growth and FDI have a negatively weak relation.

Investors require the stability of monetary condition to invest. Since inflation captures the lack of monetary control within a country, many literatures find a negative relation between FDI and inflation (Demirhan & Masca, 2008; Kok & Ersoy, 2009). In contrast, the openness (trade ratio) likely gives positive effect to FDI. Edwards (1990)a key question is how to improve the LLCs attractiveness for foreign capital flows. In this paper I explore the role of two potential sour of additional private capital inflows: increased direct foreign investment, and the debt-conversion mechanisms. The paper presents the results from an economic analysis of the determinants of the cross-country distribution of the OECD direct foreign investment (DFI finds that openness results to a positive trend on FDI.

Population size indicates the market size. Population should give positive effect on FDI because when the market is increasing in size, FDI will follow the trend (Kristjánsdóttir, 2005). On the other hand, unemployment indicates economic instability. Botric, V., and Skuflic (2006) find that unemployment rate

affects FDI negatively.

Both CPI and GE indicate the government performance and represent the quality of countries political condition. Boţa-Avram (2013) finds that corruption control and government effectiveness have positive impact on investment.

3. DATA SOURCES AND DESCRIPTIVE STATISTICS

3.1. Data Sources

The data used in this paper were obtained from various sources. Data of FDI (US$, current prices) and export-import data (US$, current prices) were obtained from United Nations Conference on Trade and Development (UNCTAD). We accessed the data from website at http://unctadstat.unctad.org/. For data of corporate tax rate (%), we use data from https://tradingeconomics.com/ as well as data from Ministry of Finance and Bureau of Statistics website of each observed Southeast Asian Countries. For CPI (index, max 100), were obtained from transparency international website at https://www.transparency.org/. As for GE (index, range (-2,5 to 2,5)), the data were accessed from https://www.theglobaleconomy.com/. Other variables data of GDP (PPP, constant 2010 US$), tax revenue (% GDP), population growth (%), unemployment (% labor market), inflation (%) were derived from World Bank website at https://data.worldbank.org/.

This study uses panel data which is the combination of cross section data and time series data. Time series data covers data of 1997 to 2016, across 10 Southeast Asia countries. To have a more homogenous panel data, we will divide our analysis into two sub-panels based on the corporate tax cut variables, which are:

1) Countries with tax rate cut: consisting of Indonesia (IDN), Laos (LAO), Malaysia (MYS), Philippines (PHL), Singapore (SGP), Thailand (THA), and Vietnam (VNM);
2) Countries with no tax rate cut: consisting of Brunei Darussalam (BDN), Cambodia (KHE), and Myanmar (MMR).

3.2. Descriptive Statistics

Table 1 reports the information of corporate tax rate of Southeast Asian countries from 1997 to 2016. It shows the changes of corporate tax rate in most countries in the region. Philippine, and Malaysia were the first country to reduce its corporate tax rate in 1998. It soon followed by other countries: Vietnam in 2000, Singapore in 2001, Indonesia in 2009, and lastly Thailand and Laos in 2012. In addition, some of these countries even reduce their corporate tax rate more than once such as Singapore, Malaysia, and Vietnam. Only three countries (Brunei Darussalam, Cambodia, and Myanmar) that have not reduced their corporate income tax. We can see that the average of corporate tax rate in Southeast Asian countries has been reduced significantly from 28,45% in the early 2000's to become 22,35% in end of 2016. Among these countries, Singapore becomes the one with the lowest corporate tax rate, while Philippine is the highest one.

Figure 2 presents the trend of FDI inflows as a percentage of GDP between countries with corporate tax cut and countries with no corporate tax cut. Even though the trend fluctuates over time, but we can see that on average, FDI inflows have a positive trend in the span of twenty years since the first time this corporate tax cut has been implemented. The biggest jump was in 2006 and 2007 where the policy has been implemented for more than 5 years with at least 4 countries reduced their corporate tax rate. On the other hand, even without corporate tax cut policy, the other countries still managed to have positive growth of FDI inflows. Even in the period of 2011-2013, they had bigger FDI ratio to GDP than the other countries with tax cut policy. However, the competitor countries took over the lead again ever since. For the past two years, the FDI inflows have declined considerably for both groups.

Descriptive statistics average value, and deviation standard of variation for all variables used in this study are displayed in Table 2. The ratio of FDI to GDP is seen to be the highest in Singapore with average 15,9% among the group of TAX cut countries, while Indonesia is the lowest with only 0,96%. Meanwhile, for the period of 20 years back, Laos is having the highest GDP growth for average of 7,06% per year, while Thailand has the slowest growth with 3,14% per year. As for tax revenue ratio to GDP, Vietnam has the highest percentage with 19,74%, while Indonesia has the lowest percentage with 11,72%. On the other hand, for openness ratio, Singapore become the most open country with 3,215 times GDP, while Indonesia seems to be the least open one with 0,339 ratio to GDP. As far as the ratio to GDP from those variables is concerned, it seems that Singapore has the best ratio out of other countries, while Indonesia seems to be lowest.

Focusing on population growth, for average, Singapore has the highest growth with 2,2%, while Thailand has the slowest growth with only 0,7%. As for unemployment rate, Indonesia has the highest number with 5,83% on average, while Thailand has the lowest rate at 1,38%. It seems that in these demographic objective variables, Thailand has the best performance among other countries.

On the other hand, Laos becomes the highest average inflation country with 18,25%, while Singapore has the lowest one with 1,5%. Meanwhile, for CPI, and GE, Singapore has shown a magnificent performance by leading the group with average index 90,35 and 2,14 respectively. For these fields, Laos becomes the lowest country with average index 21,75 and -0,822

respectively. As far as the government performance is concerned, it is clearly seen that Singapore has the lead, while Laos is the poorest.

For no TAX cut countries, for the period of twenty years back, on average, Brunei Darussalam is leading in the most objective variables by being the best government performance, both in CPI and GE. It has also the lowest inflation rate (0,46%), and the highest tax revenue ratio to GDP (31,2%). However, it has the lowest FDI ratio to GDP (1,9%), the lowest GDP growth (0,74%), and also has the highest unemployment rate (4,31%) among the three countries. Meanwhile, Cambodia has the lead in FDI inflows (7,4%), openness ratio (1,084), and has the highest population growth (1,8%). Although Myanmar seems to be the poorest government performance by having the lowest index in both CPI, and GE, it has the highest GDP growth (9,91%), and the lowest percentage of population growth (0,9%) and unemployment (1,46%) among other countries in this group.

Comparing the data of TAX cut countries, and No TAX cut countries, on average, we can see that the first group has lower tax rate than the second group. The first group has higher ratio of FDI inflows, openness ratio, and government performance as well. However, the second group is having higher GDP growth, and lower unemployment rate than the first group.

4. METHODOLOGY

4.1. Empirical Model

In this discussion, we define FDI as the net inflows in the observed economy from foreign investors divided by GDP. For the specification of the empirical model, we refer to the study conducted by Abdioglu, Binis, and Arslan (2016) with some modification and adding new explanatory variables.

We use the following model to estimate our hypothesis:

$$lnFDI_{c,t} = a_0 + a_1 lnTAX_{c,t} + a_2 X_{c,t} + YD + \varepsilon_{c,t}$$

With this model, we will test our hypothesis for the period 1997-2016 in Southeast Asian countries. FDI as the dependent variable is the FDI inflows as a percentage of GDP to a country (*c*) at time *t*. TAX as our primary independent variable is corporate tax rate in each country at time *t*. We introduce X as variables vector that are effectively influence FDI inflows. These variables are annual growth rate of GDP, ratio of tax revenue to GDP, annual rate of inflation, rate of unemployment, growth of population, and the openness of the economy, corruption index and government effectiveness index. We define YD as the year dummies set. a_0 is the constant intercept parameter estimation, α_1 represents the slope of interest parameter estimates, a_2 represents the slope of other control variables parameter, while $\varepsilon_{c,t}$ represent the error term. From this model, we expect the coefficient α_1 to be negative as a confirmation to our hypothesis.

Data of FDI inflows to GDP, tax rate, tax revenue to GDP, openness ratio, population rate, CPI, and GE is measured in the form of growth because these variables are not stationary in level. GDP growth and inflation does not need to be changed because they have already been stationary at its level. We determine those variables by using unit root test with Augmented Dickey Fuller (ADF). We applied the test in the form of the level variables to test the null hypothesis that panel data is not stationary. This test is needed to determine which variables are supposed to be changed before fit in into model in the form of growth, and which are in the form of level.

4.2. Estimation Method

In this study, panel data will be used as estimation method. Panel data will result more information, greater degree of freedom, more variability, and will be more efficient. Using this panel data, there are three approaches when we start the analysis, which are least square approach (Pooled Least Square (PLS)), fixed effect approach (FE), and random effect approach (RE). Pooled Data approach assumes that α (intercepts) and the residuals are constants across individual and over time. In fixed effect approach, variations of individual are captured in the α_{ct} (intercepts) over time. Meanwhile, in random effect approach, variations of individual and times are accommodated in the residuals.

In order to get the most suitable approach, we run our data using the three of those approaches. First step, we run our data using PLS. Next, we run both FE and RE panel regression to test our model. After that, we use Chow test to determine which one is better between PLS and FE. If the P value of FE is less than 5% alpha, then the PLS is rejected, thus, we choose FE instead of PLS. Since FE is chosen, we apply Hausman test to determine whether to use FE or RE in our model. If the difference in the coefficients is not systematic or simply the null of Hausman test is rejected, then we use FE model to test our hypothesis. In addition, we also run other statistical test, which are heteroskedastic, and autocorrelation test.

5. RESULTS, ANALYSIS, AND DISCUSSION

5.1. Model Validation

To get a valid model, we have to apply some tests, which are unit root test (stationary test), and Hausman test. Firstly, we test the stationary of our data using ADF tests. The purpose of this test is to know which variable should be treated as growth form or level form. The test is applied to level form variables, with assumption that

the Null hypotheses is non-stationary in the panel data. From this stationary test, we found that GDP growth, and inflation is stationary in level form. So, those two variables can fit to the model with no form change. Meanwhile, other variables, namely FDI Inflows, Tax rate, tax revenue, population, openness ratio, CPI, and GE are not stationary at level. Thus, these variables should be transformed into the form of growth.

Secondly, after knowing the variables form, we need to apply Hausman test. Hausman test (1978) is used to examine the inconsistencies in the estimation, between fixed effect, and random effect by comparing the slope parameter in both approaches. From the test results, Fixed Effect Model (FEM) is the best model to be applied in our study. With this result, the assumption that there is no relationship between independent variables and the error, is satisfied. Moreover, based on autocorrelation test, we find that there is no autocorrelation within the variables in our model. The heteroskedastic issue in our model is treated using variance-covariance estimate (vce), and then we get the robust result.

5.2. Estimation Results

We apply the estimation model to various data combination to estimate the data from TAX cut countries using FEM, and then we compare the results and determine which model is the most suitable to our study. From table 3, in result 1 to 3, tax rate gives negative impact to FDI inflows, which means that the tax cut policy positively correlated with FDI inflows. However, this tax rate effect disappears once openness, CPI, and GE is controlled. When we add year dummy to the model (result 5 and 6), the tax rate effect shows different sign from the earlier result. Since result 5 gives the highest R2 (0.7360), we will use this result to analyze our objective study. Having determine the model for TAX cut countries, then we will compare that result with the result from No TAX cut countries as seen in table 4. We do this comparison to better illustrate the importance our objective determinants of FDI.

For the first result, when the CPI is controlled, in the countries with tax cut policy, FDI inflows is positively affected by tax rate with the parameter significance level of 10%. GDP growth, unemployment, and CPI give positive effect to FDI Inflow with 1% significance level, while the positive impact of openness is at 5% significance level. On the other hand, tax revenue, population and inflation do not give (significant) effect on FDI inflows. In this model, the coefficient of determination (R2) is 0.7360. It means that the overall independent variables were able to explain the variation of FDI inflows by 73.6% during the period of study. The remaining 26.4% is explained by other variables not included in the estimation model. Furthermore, if we take a look at the F-statistic value of 23.25 which is significant at 99% confidence level or $\alpha = 1\%$, it means that simultaneously all independent variables jointly affect the variation of FDI Inflows.

In this model, CPI has the biggest coefficient value of 5.0975 in affecting FDI inflows. It could be explained that when the corruption control is increase by 1 point, the FDI inflows will likely increase by nearly 5,1%. On the other word, the less corrupt the country, the more they get FDI. This result is in line with the study conducted by Boţa-Avram (2013). He found that corruption control has positive impact on investment. Tax rate has the second biggest coefficient value to affect FDI inflows with 1,9979. It means that when tax rate is set higher by 1%, then the FDI inflows will increase nearly 2% as well. This result contradicts with the study conducted by Abdioglu et al., (2016), and Egger & Raff (2015). However, even though it is not significant, the result on tax revenue effect on FDI inflows fits the findings of Gropp & Kosital (2000) that FDI and tax revenue is positively correlated.

Furthermore, the increase in openness by 1% contributes to higher FDI inflows 0.91%. This result is in line with Edwards (1990) findings that openness results to a positive trend on FDI. The impact of the increase of unemployment rate to the increase FDI inflows does not support Botric, V., and Skuflic (2006) findings of negative effect of unemployment rate to FDI. Finally, GDP growth seems to be the most dominant factor in affecting FDI inflows. Even though the coefficient value is only 0.1162, but since it is in the level form, we may interpret that the increase in GDP growth by 1% contributes to higher 11% on FDI Inflows. This result supports the studies conducted by Abdioglu et al., (2016), and Egger & Raff (2015).

For the second result, when the GE is controlled, in the countries with tax cut policy, even though the sign is positive, tax rate seems to be not affecting the FDI Inflows since the parameter is not significant. GDP growth remains to give positive effect to FDI Inflow with 1% significance level, while unemployment, and openness positively affect FDI Inflows at 5% significance level. Other variables (tax revenue, population, inflation, and GE) do not give (significant) effect on FDI inflows. In this model, the coefficient of determination (R2) is 0.3922. The F-statistic value of 7.83, and significant at 99% confidence level. Comparing this second result with the first one, we may see that by having CPI as control variable, we get better result because the R2 is higher than the second result.

When we control GE as government performance indicator, tax rate is no longer give effect to FDI inflows. Surprisingly, GE is not giving a significant effect as well. Here, openness has the biggest coefficient value with 1.3491, followed by unemployment (0.8417), and GDP growth (0.1360). Those three variables correlate to FDI inflows positively. The difference between the first result and the second result is only on the significance level for each variable, while all variables in both results

show consistent coefficient signs.

For the No TAX cut countries, when we control CPI, tax rate gives positive effect to FDI Inflows at 10% significance level, the same with population. Openness gives positive effect with 1% significant level. On the other hand, other variables do not have (significant) impact on FDI Inflows. In this model, the coefficient of determination (R2) is 0.5459. The F-statistic value of 6.68, and significant at 99% confidence level.

In this first result, aside of tax rate, openness is the most dominant factor to increase FDI inflows with 1.4213 coefficient value, which simply mean that when openness increased by 1%, the FDI inflows will follow by increasing 1,4%. Different with the TAX change countries, here, population give positive impact to FDI inflows with 1.5051 coefficient value. It supports the theory from Kristjánsdóttir (2005) saying that population should give positive effect on FDI because when the market is increasing in size, FDI will follow the trend. Surprisingly, the result shows that CPI does not affect FDI, although the sign is negative.

For the second result, when we control GE, tax rate remains to give positive effect to FDI Inflows at 10% significance level the same with openness and inflation. With this model, population gives the biggest positive effect with 1% significant level, while GE has positive effect with 5% significance level. On the other hand, other variables (GDP growth, tax revenue, and unemployment) do not have (significant) impact on FDI Inflows. In this model, the coefficient of determination (R2) is 0.8530. It means that the overall independent variables were able to explain the variation of FDI inflows by 85.3% during the period of study. The F-statistic value of 19.34 which is significant at 99% confidence level or $\alpha = 1\%$, it means that simultaneously all independent variables jointly affect the variation of FDI Inflows. Comparing this second result with the first one, we may see that by having GE as control variable, we get better result because the R2 is higher than the first result.

In this second result, population is the biggest factor to affect FDI with 1.3285 coefficient value, followed by openness (0.7855), GE (-0.5652) and inflation (0.0318). The result on GE is contradicts with the study conducted by Boţa-Avram (2013). This negative sign may lead to a harsh suggestion that when the government is poorly manage the country, the more investors eager to invest.

5.3. Intercepts Interpretation

The interpretation of the intercepts for each country is seen on table 5. Intercept values of each individual show that FDI inflows in each country are different. From the FEM estimation result, the country that is potentially having the highest the FDI inflows growth is Laos, followed by Vietnam, and Thailand. While Singapore could potentially get the lowest FDI inflows growth compare to other countries.

The differences in the growth FDI inflows among these observed countries are due to the difference in the characteristics of each country. For a country where previously has low FDI, once they have better economic performance such as higher GDP growth, and more open in term of trade, and also have an improvement in government performance such as higher index of CPI and GE, it will likely induce more investors to invest in their country. It is experienced by Vietnam currently.

In the early observed period (1997), Vietnam is still struggling in managing their domestic issue. The CPI was low (28) which means a moderate corrupt country, and the GE index was -0,35 or simply inefficient government. At that time, the FDI inflow was US$ 2.2 billion. However, since the last ten years, Vietnam's performance has gradually increase both in GE and CPI. In 2016 CPI and GE index was 35, and 0.01, which means a massive improvement. With average 6.04% GDP growth for the last ten years, and supported by more efficient government, Vietnam is now becoming one of the most promising market in Asia (IMF report). FDI inflows in 2016 was reported US$ 12.6 billion, increased 567.67% from 1997. Thus, if the trend is still continuing, we may see a better Vietnam in the term of FDI inflows in the future.

5.4. Discussion

As our main interest variables, tax rate policy is empirically proven to increase the FDI inflows in Southeast Asian region. However, on average, the sign is not consistent with other study (i.e. Abdioglu et al., (2016), and Egger & Raff (2015)). We find that tax rate is positively correlated with FDI inflows, that when the rate is reduced, FDI inflows will decrease as well. However, the effect of this tax rate policy is not strong enough. Investors consider other factors when they have to determine whether to invest or not. This finding may be resulted from the tax competition in the area as well as the China Effect. Since most countries in this area implement a relatively similar fiscal instrument, investors look to other market that provide bigger investment returns. At the same time, we see in this study period, China has a flourishing economic performance which indeed give negative sentiment for other developing countries.

In this area, for the past twenty years, openness ratio becomes the most important factors to induce investors in all countries in the region. The more open the country, the higher the possibility for them to get FDI inflows. This positive result is in line with Edwards (1990) study. This openness effect may be due to the prospect of larger market, and potential to market expansion.

GDP growth has been one of the most dominant

factors in affecting FDI inflows for the countries with tax cut policy. At average, the increase in GDP growth by 1% contributes to higher 11% on FDI Inflows. This result supports the studies conducted by Abdioglu et al., (2016), and Egger & Raff (2015). Higher GDP growth will give certainty of higher return on investment, thus the investor would invest more. However, this case does not occur in the countries with no tax cut policy. In these countries, the economic growth is not always the case to lure investors. The biggest issue may be the government performance.

The government performance is pivotal to attract investor. However, our result suggests a distinctive result in both groups. While for countries with tax cut policy, the less corrupt they are, investors will invest more. In contrast, in the countries with no tax cut policy, where the efficiency of government increase, the investors tend to reduce the investment. The latter result opposes the findings by Boţa-Avram (2013) study. But, the importance of institutions seems to be undeniably essential for investors in these two groups. It is due to the fact that in this area, the security of investment is still questionable since during the last few decades many of these countries has experienced political turmoil which in turn holdbacks the flow of investment.

In addition, in the countries with tax cut policy, unemployment will potentially increase the rate of FDI inflows. This result does not support Botric, V., and Skuflic (2006) suggestion. It may be due to the labor force supply, and the tendency of low wage of these labors. On the other hand, it is the population rate that gives significantly positive effect on FDI inflow for countries with no tax cut policy. As what Kristjánsdóttir (2005) suggested that population represents market size, thus, the higher it is, more investors will come.

6. CONCLUSIONS

In this study, we examine the determinant of FDI inflows in Southeast Asian countries, with the effect of tax cut policy as our main interest. We conduct the study using data from 1997-2016, where most of countries in the region start to apply the corporate tax cut policy.

Our results confirm that in Southeast Asian countries, tax policy has a weak role in inducing FDI inflows. In this area, it is the institutional aspect that matters the most to attract the foreign investors. Even though many countries construct a relatively radical fiscal policy by having continuously tax rate reduction which in turn leads to tax competition in the region, it is the institutional reform that drive the flow of investment to the countries. As a result, since the country becomes more expose to international trade thanks to institutional reformation, the foreign investments follow.

GDP growth and trade openness are the two main drivers of FDI inflows in the region. When the country become more secure for investments, economic prospect, which is indicated by GDP growth and trade openness, then upsurge the investment flow.

From the study period and based on the economic and institutional aspects, we see that Vietnam was the winner in this so-called tax competition. The main reason was because it uses both fiscal policy and the institutional reform to invite foreign investments. The increase in government performance which indicates the security for investment then give higher return to Vietnam than the loss of its national income from the tax cut policy.

7. SUGGESTIONS

Through this study, we find the impact of tax cut on FDI inflows in Southeast Asian region. Thus, we may suggest some alternative policies for the policy makers to pursue higher FDI inward, such as:

1) Reducing tax rate is not going to give positive effect on inducing foreign investors in the long run. It only has temporary effect on FDI inflows. Since neighborhood countries are also implementing the same tax policy, it is better for each country to focus on improving government performance. Less corruption and more effective government will give significant effect on attracting investors.
2) Since openness ratio is one of the most dominant determinants of FDI, then countries in the Southeast Asia should increase the trade volume among themselves. With this strategy, not only FDI inflows will increase but also the total productivity.
3) As for further study, it is better to have a disaggregate FDI data to examine which sectors will be more responsive to the change of tax rate. By having this particular study, it may come up to some policy recommendation.

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ILLUSTRATION TABLES

Table.1. Corporate Income Tax Rates

Year	BRN	IDN	KHM	LAO	MYS	MMR	PHL	SGP	THA	VNM
1997	18,5	30	20	35	30	25	35	26	30	35
1998	18,5	30	20	35	28	25	34	26	30	35
1999	18,5	30	20	35	28	25	33	26	30	35
2000	18,5	30	20	35	28	25	32	26	30	33
2001	18,5	30	20	35	28	25	32	25	30	32
2002	18,5	30	20	35	28	25	32	24	30	32
2003	18,5	30	20	35	28	25	32	22	30	32
2004	18,5	30	20	35	28	25	32	22	30	28
2005	18,5	30	20	35	28	25	32	22	30	28
2006	18,5	30	20	35	28	25	35	22	30	28
2007	18,5	30	20	35	27	25	35	22	30	28
2008	18,5	30	20	35	26	25	35	18	30	28
2009	18,5	28	20	35	25	25	30	18	30	25
2010	18,5	25	20	35	25	25	30	17	30	25
2011	18,5	25	20	35	25	25	30	17	30	25
2012	18,5	25	20	28	25	25	30	17	23	25
2013	18,5	25	20	24	25	25	30	17	20	25
2014	18,5	25	20	24	25	25	30	17	20	22
2015	18,5	25	20	24	24	25	30	17	20	22
2016	18,5	25	20	24	24	25	30	17	20	20

Source: Author's Compilation

Table.2. Descriptive Statistics of Dependent and Independent Variables

	TAX Cut Countries			No TAX Cut Countries		
Variable	**N**	**Mean**	**Std. Dev.**	**N**	**Mean**	**Std. Dev.**
FDI	140	4,554	5,712	60	3,858	3,771
TAX	140	29,9857	4,9457	60	21,1667	2,8023
GDP	140	5,0365	3,3525	60	6,1313	4,7703
REV	140	14,4246	2,8745	60	14,9175	12,2885
POP	140	1,52	0,76	60	1,48	0,52
OPEN	140	1,1811	0,9817	60	0,7382	0,4275
UNEMP	140	3,4071	2,1317	60	2,7305	1,9873
INF	140	6,5444	15,0456	60	7,7325	12,5347
CPI	140	39,69	22,68	60	30,56	16,48
GE	140	0,2847	0,9381	60	-1,1412	0,2936

***Notes**: N: number of observation; Mean : average; Std. Dev: standard deviation*

Table 3. Estimation Result for TAX Cut Countries

Variables	TAX Cut Countries FDI					
	1	2	3	4	5	6
ln_TAX	-2.842***	-3.168***	-3.060***	-0.0021	1.9979*	1.5842
	(0.8301)	(0.8947)	(0.8928)	(1.1633)	(1.0696)	(1.269)
GDP	0.1681***	0.1726***	0.1634***	0.1289***	0.1162***	0.1360***
	(0.0356)	(0.0359)	(0.0363)	(0.0356)	(0.0303)	(0.0358)
ln_REV	1.6142	1.7234	2.2664	0.7524	1.0875	1.3005
	(1.1069)	(1.1126)	(1.1618)	(1.1715)	(0.9968)	(1.160)
ln_POP	0.0521	0.0496	0.0560	0.0299	0.0703	0.0275
	(0.1598)	(0.1599)	(0.1591)	(0.1513)	(0.1269)	(0.1480)
ln_UNEMP		0.3177	0.4154	0.6199*	0.8008***	0.8417**
		(0.3246)	(0.3290)	(0.3170)	(0.2788)	(0.3317)
INF			-0.0142	-0.0101	-0.0054	-0.0111
			(0.0092)	(0.0089)	(0.0075)	(0.0087)
ln_OPEN				1.9482***	0.9183**	1.3491**
				(0.5066)	(0.4582)	(0.5462)
ln_CPI					5.0975***	
					(0.7608)	
ln_GE						1.4219
						(2.0134)
Year					0.7257***	0.9001***
					0.2853	0.3316
Cons.	-1.2854	-1.0459	-2.6949	-7.3901*	-9.3583**	-16.610***
	4.2223	4.2302	4.3422	4.3011	(4.3547)	(5.8071)
R-squared	0.5621	0.5654	0.5733	0.6181	0.7360	0.6419
F-statistic	16.56	15.14	14.22	15.69	23.05	14.82
Prob (F-statistic)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
N	140	140	140	140	140	140

***, **, * significant at 1%, 5%, 10% level

Table 4. Estimation Result for comparison

Variables	TAX Cut Countries			No TAX Cut Countries			
	FDI	Prob.	FDI	Prob.	FDI	Prob.	FDI
ln_TAX	1.9979*	0.064	1.5842	0.215	9.200*	0.085	4.1582*
	(1.0696)		(1.269)		(5.2329)		(2.1879)
GDP	0.1162***	0.000	0.1360***	0.000	0.0481	0.278	-0.1245
	(0.0303)		(0.0358)		(0.0438)		(0.0975)
ln_REV	1.0875	0.277	1.3005	0.265	0.8611	0.270	0.6029
	(0.9968)		(1.160)		(0.7724)		(0.3877)
ln_POP	0.0703	0.580	0.0275	0.853	1.5051*	0.058	1.3285***
	(0.1269)		(0.1480)		(0.7754)		(0.4292)
ln_OPEN	0.9183**	0.047	1.3491**	0.015	1.4213***	0.008	0.7855*
	(0.4582)		(0.5462)		(0.5130)		(0.3927)
ln_UNEMP	0.8008***	0.005	0.8417**	0.012	-0.1535	0.467	-0.0923
	(0.2788)		(0.3317)		(0.2095)		(0.0956)
INF	-0.0054	0.469	-0.0111	0.207	0.0473	0.145	0.0318*
	(0.0075)		(0.0087)		(0.3192)		(0.0167)
ln_CPI	5.0975***	0.000			-1.0168	0.313	
	(0.7608)				(0.9985)		
ln_GE			1.4219	0.481			-0.5652**
			(2.0134)				(0.2404)
Cons.	-9.3583**	0.034	-15.583***	0.008	-28.0019	0.079*	-10.8753
	(4.3547)		(5.8071)		(15.6037)		(6.0337)
R-squared	0.7360		0.6419		0.5459		0.8530
F-statistic	23.25		14.82		6.68		19.34
Prob (F-statistic)	0.0000		0.0000		0.0000		0.0000
N	140		140		60		60

Notes: TAX Cut countries using FE; No TAX cut countries using PLS,
( ) in the bracket is standard error
***, **, * significant at 1%, 5%, 10% level.

Table 5. Individual intercept result

Fixed Effect (Cross)	Intercept
Malaysia	-2.1998
Philippine	0.7258
Singapore	-3.7602
Thailand	1.0536
Vietnam	1.6122
Laos	3.3131

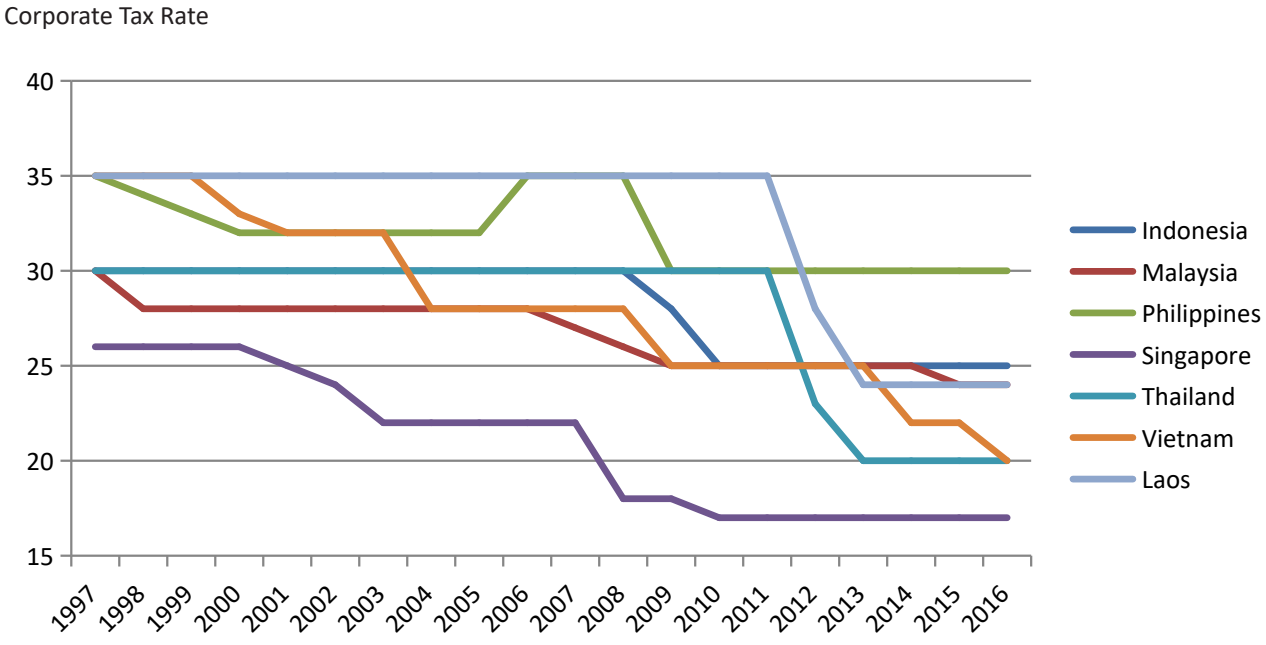
Note: Indonesia as the based country (0)
Source : Author calculation

Table 6. Unit Root Test

Variable	ADF-Fisher Chi-square	
	Statistic	Probability
FDI	28.8586	0.0109
TAX	4.52339	0.9207
GDP	64.4827	0.0000
REV	33.4689	0.0025
POP	19.7342	0.1387
OPEN	10.6741	0.7114
UNEMP	34.2890	0.0019
INF	52.5715	0.0000
CPI	0.0109	0.6201
GE	17.7995	0.2161

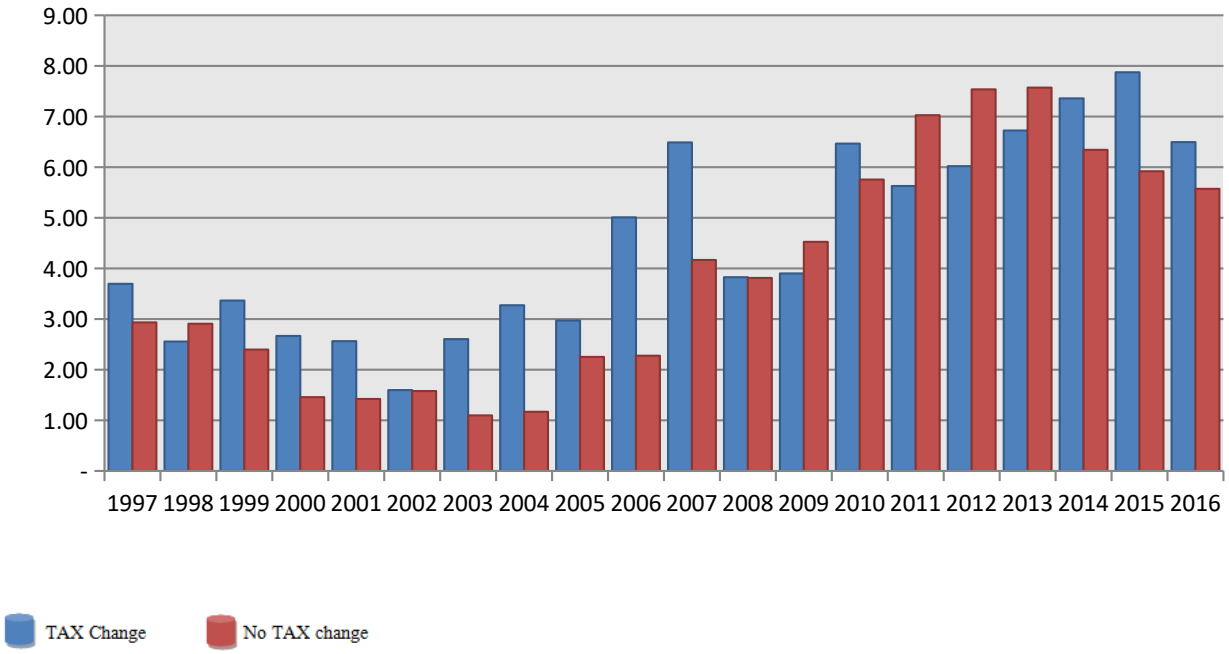
ILLUSTRATION FIGURE

Figure 1. Corporate Tax Rate Reduction in Southeast Asian Countries



Source: Author's Compilation

Figure 2. FDI inflow as percentage of GDP: Comparison between two sub-panel countries



Source: Author's Compilation