JEMASI: Jurnal Ekonomi Manajemen dan Akuntansi
Vol. 18, No. 1, Juli 2022
Website: http://ejournal.iba.ac.id/index.php/jemasi
ISSN 1858-2702, e-ISSN 2684-8732

THE EFFECT OF TAX TREATY ON FOREIGN DIRECT INVESTMENT ACTIVITY: INDONESIA OVERVIEW

Rofi Cahyono[1]

[1]Universitas Indonesia, Depok, Indonesia
[1]ISS Erasmus University, Belanda

ABSTRACT

The effect of tax treaty on foreign direct investment (FDI) has attracted many researchers. However, all of the studies on the effect of tax treaty on foreign direct investment show ambiguous results depending on the approach used, the study's location, and the time studied. Moreover, the study about the impact of tax treaty on foreign direct investment is rare in Indonesia context. This study uses panel data analysis to investigate the effect of tax treaty and others FDI determinant on FDI in Indonesia. By using Gravity Model, this research conclude that tax treaty has a positive effect on FDI inflows in Indonesia and grow over time. However, this research gives a mixed result on the effect of others FDI determinant on FDI Indonesia. The result varied by FDI sectors. Furthermore, in contrast with the effect of the tax treaty on FDI which significantly positive, the institutional factors gives insignificant result on FDI.

Keywords: *Foreign Direct Investment, Foreign Direct Investment Determinant, Double Taxation, Tax Treaty, Gravity Model.*

INTRODUCTION

The impact of taxes on economic performance is one of the most debatable research question in macroeconomics. Many research have studied the impact of taxes on economic activity. However, empirical and theoretical studies about the effect of taxation in economic performance still ambiguous. In the Neo Classical growth model which the first time is presenting by Solow (1956), the rate of economic growth did not affected by fiscal factors such as government budget expenditures and taxes in the long period, because growth rate in the Solow model, is more affected by exogenous factors such as rate of technological progress and growth of countries population. On the other hand, the endogenous model hypothesises that the growth long period will be driven by productive government spending and taxes.

There are several channel which taxation could affect economic performance. This channel could come through the tax structure, the level of tariff, or tax barrier like double

taxation, etc. In this globalization era, tax barrier could drive the multinational company decision to choose whether they put their investment from one country to another or in other word, where foreign direct investment (FDI) flows. And in this era, FDI could be one of main concern for government policy because FDI could drive manufacture productivity and in the end, economic growth. Many literature review give an overview about the significant effect of FDI on economic performance. Christiansen (2002) argue that the development in economic, modernization, employment and income growth in transition economies, developing countries and emerging economies, are all based on FDI. In addition, Shah (2009) stated that FDI has both direct and indirect effect, it is directly assert a positive influence on the production of the country through knowledge transfer and indirectly elevates the quality of worker in the countries where FDI flows in (the host state). Moreover, Papathoma (2004) shows that Great Britain enjoys 30% productivity increase in manufacturing sectors due to FDI inflows.

The theories shows a huge number of factors that can be the determinant of foreign direct investment (FDI), the variables that affect the FDI in some countries. Some of these variables are based on formal theories of FDI, but the others variables are included only because they are logically make sense to explain FDI flows. Artige and Nicolini(2005) state that market size variables which can be presented by GDP or GDP percapita could be the most significant factors of FDI in economics studies. From many literatures, market size is the main determinant for FDI. Another main variable which determine FDI is Distance. The concept of distance is really important if we want to understand the international firm and trade activity by spatial perspective. Various studies show that the distance between countries is a main determinant of trade between two or more countries (e.g Frankel and Rose 2002) and investment by multinational companies (Bloningen, et al 2007). Recently, many factors like growth, openness, infrastructure, cost of labour and productivity, institutional and political risk, and tax also propose by many researchers as determinant factor of FDI.

Therefore, as the importance of foreign direct investment (FDI) increases, the importance of double tax treaties also increase. The importance of international double taxation increase following the increasing trend of FDI can be explained in two ways. First, double taxation problem happens because every state has a right to collect taxes, it is the sovereign right of every countries. It, however, creates problems as well. If the revenue of multinational firm (FDI firm) are taxed initially by the host country followed by home country, then this is the occurrence of double taxation in the same level of revenue. This occurrence of double taxation decreases the advantage of the FDI. Second, the problem of tax evasion. Since it is hard for tax authorities to recognize the precise revenues of a subsidiaries foreign company as compared to profits of the parent company in the source country (the home country), thus the governments of the source and host country where the company operated must be cooperated with each other and conclude tax treaties in order to prevent tax avoidance. Consequently, there are two objective of double taxation treaties, first is to avoid double taxation, and second is to avoid tax evasion. Hence, there are two possible ways by which a tax treaty affect foreign direct investment (FDI). In the first objective, it will increases FDI because tax treaty will reduce the negative effects of double taxation. While

the second objective, it discourage FDI because it is created wall for tax evasion, since multinational company as FDI owners look at taxes as a profit reduction for their investment.

Two opposing influences of tax treaties on foreign FDI make it difficult to decide whether double tax treaties actually affect FDI or not. Moreover, if they affect, which is bigger, the positive impact or negative impact, or then the two effects overwhelms the other or not. These debate about the impact of double tax treaty on foreign direct investment (FDI) still exists because existing research is still inconclusive about the impact of double tax treaty on FDI flows. The result of research conducting by Shah, H.M. and Qayyun, S (2015) in Latin American and Caribbean shows that double tax treaties do not have any impact on FDI inflows to country where the research being held. The reason behind this result may be that developing countries keep their tax rate very low because they want to attract foreign investor. On the other hand, Murciego, A.C. and Laborda, J.L. (2018) research stated that double tax treaty have significant effect on FDI in Spain for the period 1993-2013. This result support the study conducted by Bloningen and Davies (2000) in US FDI inbound stock which conclude that tax treaty have significant effect on US FDI inbound stock (positive impact). The different and contrast result also demonstrated that some factors other than double taxation treaties such as market size, level of development (infrastructure and human resource), openness, and region may also affect FDI flows and need further research.

For Southeast Asia developing countries, especially Indonesia, research on the effect of tax treaty on foreign direct investment (FDI) is rarely seen. This research try to provide another evidence on the impact of double tax treaty on FDI based on Indonesia data.

METHOD AND DATA

Method

The gravity model are the model that used in various social sciences to predict certain behaviors that based on gravitational interaction that modeled by Isaac Newton's Law of gravity in physic science. Newton's law of gravity said that there is a gravitational pull of objects directly proportional to the mass of object and inversely proportional to the distance between them. In the economics science, the gravity model early used was in international trade theory and developed as one of the most used and successful model to predict trade behavior between countries. The model was developed by a Dutch Economist Jan Tinbergen in the 1960's. The gravity theory suggest that an economy will gravitate towards trading with its closest neighbors and economies which are similar in size, cultural preferences and stage of development.

While normally the gravity model is estimated using Ordinary least squares (OLS), recently, many researchers criticized the method by saying that it does not control the relationship of heterogeneous trade. Anderson and Wincoop (2003) claim that the specification of standard gravity equation is not accurate since it does not incorporate multilateral resistance terms considering that the trade between two countries is also affected by the trade between them and all other countries (Anderson and Wincoop, 2003). Therefore Anderson and Wincoop, suggested to use fixed effect in the gravity model study.

The use of gravity model on foreign direct investment analysis related to tax treaty started by Bloningen and Davies in 2000. This research analyses the effect of tax treaty on FDI based on the model developed by Bloningen and Davies (Bloningen and Davies, 2000) based on gravity model. It analyses the effect of tax treaty on FDI with the focus on tax treaties between investor countries (home) with host countries, in this research is Indonesia. This model use panel data model for analysis with the main variable is tax treaty (TT). Based on the theory on the literature about the determinant of FDI, we use others factor which affect FDI as the control variables. The main additional control variables we employ are market size (GDP) and (GDP per Capita), distance (REMOTENESS), trade openness (OPENNESS) and institutional variables (Corruption, Law and Order, Government, Bureaucracy). This paper will use the empirical model of FDI activity that will also capture other factor beside of tax. The gravity model of FDI which used in Blonigen and Davies (Bloningen and Davies, 2000) research is considered to be representative model in estimating the effects.

The initial specification of the model is:

$$FDI_{ijt} = f\,(RGDP_{it}, RGDP_{jt}, RGDPCAP_{it}, RGDPCAP_{jt}, DIST_{ij}, TOPEN_{it}, TT_{ij}, Z_{ij}) \quad (3)$$

Considering the conceptual framework, this research will examine the hypothesis that it is expected that tax treaties generates an increase in foreign direct investment. We also employ tax treaty ages so we can test if the impact of tax treaty grow over time. To test the hypotheses, we will use the panel data regression. We expect to use Fixed Effect Regression to test the hypotheses. The response variable on the model is foreign direct investment, in total or by sectors to know more about the nature of tax treaty on FDI by sector. Moreover, there are seven predictor determinant namely tax treaty, Tax Treaty age, GDP, GDP per Capita, Distance, trade openness and Institutional Variables.

To test the hypotheses, it will use the panel data regression. The response variable is foreign direct investment. Moreover, there are nine predictor variables namely tax treaty, tax treaty ages, GDP of the home country, GDP of the host country, GDP per Capita of the home country, GDP per Capita of the Host Country, Remoteness (as a proxy of Distance), trade openness and 6 Institutional Variables. We use two step model in this research. The first model is we employ the main gravity model include tax treaty and tax treaty age as our main research variables. The main gravity model are based on traditional gravity model which only use market size, distance and openness as determinant of FDI. The second model include institutional variables as the control variables. The main estimation model are:

$$Ln\ FDI_{ijt} = \beta_0 + \beta_1\, TT_{ijt,} + \beta_2\, TTAGE_{ijt} + \beta_3\, ln\ GDP_{it} + \beta_4\, ln\ GDP_{jt} + \beta_5\, ln\ GDPCAP_{it} + \beta_6\, ln\ GDPCAP_{jt} + \beta_7\, ln\ REM_{ijt} + \beta_8\, TOPEN_{it} + \beta_9\, TOPEN_{jt} + \varepsilon_i \quad (4)$$

The second estimation model include institutional factors are:

$$Ln\ FDI_{ijt} = \beta_0 + \beta_1\, TT_{ijt,} + \beta_2\, TTAGE_{ijt} + \beta_3\, ln\ GDP_{it} + \beta_4\, ln\ GDP_{jt} + \beta_5\, ln\ GDPCAP_{it} + \beta_6\, ln\ GDPCAP_{jt} + \beta_7\, ln\ REM_{ijt} + \beta_8\, TOPEN_{it} + \beta_9\, TOPEN_{jt} + \beta_{10}\, INST_{jt} + \varepsilon_i \quad (5)$$

Data

In pursuit of the objective of the research, this study will use panel data with all countries with foreign direct investment and without FDI in Indonesia as cross section unit analyses during the period from 1990 to 2016. The year of 1990 is chosen because data of FDI inflows per sector only available 1990 afterward. In term of variable, this research

requires several data. First, information regarding FDI from each parent countries to Indonesia come from Indonesia Investment Coordinating Board. Second, the Tax Treaty data are sourced from Directorate General of Taxes. Third, the data of GDP for the host and the parent countries are obtained from The Wold Bank. Data of distance between countries taken from The Centre dÉtudes Prospectives et dÍnformations Internationales (CEPII), while trade openness iscome from the World Bank Data. If the data cannot get from this Site, this research constructed an alternative trade openness measure defined as the trade flows (export and import) divided by its GDP. Lastly, the institutional data like Government, Corruption, Law and Order, Investment Profile, Bureaucracy, are used as additional control variables in this study. The data for these variables have been taken from The International Country Risk Guide (ICRG).

In this research, we try to analysis the effect of tax treaty on FDI into sectors level. We try to capture the nature of tax policy in each sectors and the impact to FDI. However, data from Indonesia Central Bank and Indonesia Investment Coordinating Board only break down the sector level into three categories, primary sectors, secondary sectors, and tertiary sectors.

The treaty effect are measured through the two types of dummy variables. The first one is tax treaty by creating a variable that start from "0" till the year the tax treaty be implemented and become "1". The second is dummy interactive variable for measure age effect of tax treaty. We construct these dummy variable by create a continuous time variable rising in value as the calendar year. Then we create a variable that start from "0"till the year treaty does not take off and "0"when the year tax treaty has been implemented. Finally, we multiply that two variables to construct tax treaty age variable.

In term of market size, when many studies only hypothesize relationship between host country GDP and GDP per capita, Bloningen and Davies include GDP and GDP per capita of home countries in the model. In this research we will follow Bloningen and Davies and use both GDP and GDP per Capita as representation of market size from home and host country. We use remoteness as a proxy of distance. Remoteness is defined by a formula that measures an average weight distance of a country from its trading partners. It is used to capture the idea that the more the remoteness of a country is, the higher the trade cost needed as well as in investment.

RESULT AND ANALYSIS

This chapter analyses the data gathered and addresses each of the research questions in turn. Firstly, it presents the linkages between tax treaty and foreign direct investment. Secondly, it seeks to assess the impact of tax treaty on sector level and see how the tax policy on sector level affect foreign direct investment. Moreover, it will examine whether tax treaty effects on FDI activity grow over time. Finally, this chapter also analyses the effect of others FDI determinant on Indonesia FDI inflows.

To explore the impact of tax treaty on the foreign direct investment, this study uses the basic following regression specification:

$$Ln\ FDI_{ijt} = \beta_0 + \beta_1\ TT_{ijt,} + \beta_2\ TTAGE_{ijt} + \beta_3\ ln\ GDP_{it} + \beta_4\ ln\ GDP_{jt} + \beta_5\ ln\ GDPCAP_{it} + \beta_6\ ln\ GDPCAP_{jt} + \beta_7\ ln\ REM_{ijt} + \beta_8\ TOPEN_{it} + \beta_9\ TOPEN_{jt} + \varepsilon_i \quad (6)$$

Where *Ln* FDI_{ijt} Logarithmic form of FDI from country i to country j at time t, TT_{ijt}, Dummy variable of Tax Treaties (0 if without tax treaty, 1 if with tax treaty) varied by *i* countries and *t* time, $TTAGE_{ijt}$ Dummy variable of tax treaty age, *ln* GDP_{it}Logarithmic form of nominal GDP of country i times at time t, *ln* GDP_{jt}Logarithmic form of nominal GDP of country j times at time t, *ln* $GDPCAP_{it}$Logarithmic form of nominal GDP per Capita of country i times at time t, *ln* $GDPCAP_{it}$Logarithmic form of nominal GDP per Capita of country j times at time t, *ln* REM_{ijt}Remoteness (distance between country iand country jweighted by trading partner GDP share to the rest of the world), $TOPEN_{it}$ Trade Openness (export+import)/GPD varied by *i* countries and *t* time, and $TOPEN_{jt}$Trade Openness (export+import)/GPD of *j* countries and *t* time.

Linkage between Tax Treaty and Foreign Direct Investment

To select a suitable model based on the characteristics of the panel data, Hausman test and likelihood ratio test are conducted. These tests specify that fixed effect model is appropriate.

Table 1. Estimated Result of the Impact of Tax Treaty on the Total of Foreign Direct Investment (Fixed Effect Model)

Variables	**(1)**	**(2)**
Tax_Treaty	0.8430908***	0.8113376***
	(0.1042946)	(0.1059877)
AgeTT	0.0747353***	0.074205***
	(0.0049065)	(0.0049912)
LGDP it	-0.0045052	-0.0346953
	(0.0886955)	(0.0900108)
LGDP jt	6.181302***	65.34795***
	(1.023745)	(24.04419)
LGDP Capita it	0.1233903	0.1297365
	(0.0820913)	(0.0830819)
LGDP Capita jt	6.929688***	77.95902***
	(1.197412)	(28.52564)
LREM	-0.1029667	-0.3073201*
	(0.154565)	(0.1720728)
Openness it	-0.0002382	0.0003159
	(0.0006911)	(0.000696)
Openness jt	0.0072866***	0.0892992***
	(0.0026948)	(0.0243561)
Constant	-47.51121***	512.1816***
	(7.983427)	(187.3514)
N Observations	3,456	3,456
N Countries	128	128
Time Variant Controls	No	Yes
R-Squared	0.1984	0.2144
adjusted R-squared	0.1656	0.1765

The regression results of fixed effect model are reported in Table 1 column (1) reports the base regression as in main gravity model include the main variable of this research (tax treaty and treaty age). Column (2) reports results where time dummies are added to the regression, to account for the changing nature of the relationship over time. Column (1) has revealed that the results of basic regression specification indicate that bilateral tax treaty with Indonesia, ages of tax treaty, GDP of the host country (Indonesia), GDP per capita of host country, and Openness of host country, have been associated with foreign direct investment at national level (Total FDI). The coefficient estimates of bilateral tax treaty with Indonesia, ages of tax treaty, GDP of the host country (Indonesia), GDP per capita of host country, and Openness of host country are all statistically significant and positive.

The result indicates that the existence of bilateral tax treaty between countries with Indonesia leads to an increase in foreign direct investment inflow to Indonesia. The result also show that the effect of tax treaty on FDI inflows to Indonesia is grow over time. Moreover, the result suggesting that the increase of main variable in gravity model (GDP of the host country, GDP per capita of host country, and Openness of host country) leads to an increase in FDI inflows. However, the GDP of home countries as a source of FDI, GDP per capita of home countries, openness of home countries and remoteness as a proxy of distance are all statistically not significant on FDI inflows. The next step is to add year fixed effects.

As shown in column 2 of Table 1, the result for the variable are almost completely consistent after controlling for year fixed effects. The coefficient of bilateral tax treaty with Indonesia, ages of tax treaty, GDP of the host country (Indonesia), GDP per capita of host country, and Openness of host country remain unchanged, which is positive and significant at the 1 per cent level, indicating that an existence of tax treaty, time factor of FDI, market size of host country, and openness of host country will lead to an increase of FDI Inflows. The difference result after controlling for year fixed effects occur on the remoteness variable which turn to be statistically significant and negative. This result contradict with the hypothesis for remoteness which is significant and positive. However, the GDP of home countries as a source of FDI, GDP per capita of home countries, openness of home countries are all consistent and remain statistically not significant on FDI inflows.

Table 2. Estimated Result of the Impact of Tax Treaty on the Primary Sectors of Foreign Direct Investment (Fixed Effect Model)

Variables	**(1)**	**(2)**
Tax_Treaty	1.020839***	1.01172***
	(0.0901226)	(0.0919812)
AgeTT	0.0744072***	0.0745602***
	(0.0042398)	(0.0043316)
LGDP it	-0.0092277	-0.0302223
	(0.0766431)	(0.0781157)
LGDP jt	0.4689276	24.21369
	(0.8846334)	(20.86671)
LGDP Capita it	0.0406238	0.0315485
	(0.0709363)	(0.0721025)
LGDP Capita jt	0.6772045	28.8979

	(1.034702)	(24.75592)
LREM	0.1470125	0.0578073
	(0.133562)	(0.1493331)
Openness it	0.002573***	0.0028125***
	(0.0005972)	(0.000604)
Openness jt	0.0011511	-0.0278234
	(0.0023286)	(0.0211374)
Constant	2.533331***	188.455***
	(6.8986)	(162.5925)
Time Variant Controls	No	Yes
R-Squared	0.1568	0.1664
adjusted R-squared	0.1222	0.1262

The result on primary FDI sectors show that the main variables tax treaty and tax treaty age are gives remain consistent result and statistically significant with positive magnitude in FDI Primary Sectors result. The result also unchanged with time variance control. However, other variables are become statistically not significant except the openness of home countries.

Table 3. Estimated Result of the Impact of Tax Treaty on the Secondary Sectors of Foreign Direct Investment (Fixed Effect Model)

Variables	**(1)**	**(2)**
Tax_Treaty	0.4766699***	0.4723276***
	(0.0921427)	(0.0936213)
AgeTT	0.054606***	0.0554718***
	(0.0043348)	(0.0044089)
LGDP it	-0.0720663	-0.0882842
	(0.0783611)	(0.0795086)
LGDP jt	1.888381**	-16.44371
	(0.9044624)	21.23879
LGDP Capita it	0.0755961	0.1176875
	(0.0725264)	(0.0733882)
LGDP Capita jt	2.052795*	20.01194
	(1.057895)	(25.19735)
LREM	-0.0414234	-0.1405498
	(0.1365558)	(0.1519959)
Openness it	-0.0003555	0.0000573
	(0.0006106)	(0.0006148)
Openness jt	0.0006169	0.0262473
	(0.0023808)	(0.0215143)
Constant	-13.80912	129.0354
	(7.053232)	(165.4918)
Time Variant Controls	No	Yes
R-Squared	0.1193	0.1371
adjusted R-squared	0.0832	0.09551217

Moreover, the result on secondary FDI sectors show that the main variables tax treaty and tax treaty age are remain consistent and statistically significant with positive magnitude in FDI Secondary Sectors result. The result also unchanged with time variance control. However, other variables are become statistically not significant except the GDP and GDP per capita of host country.

Table 4. Estimated Result of the Impact of Tax Treaty on the Tertier Sectors of Foreign Direct Investment (Fixed Effect Model)

Variables	**(1)**	**(2)**
Tax_Treaty	0.9853667***	1.015799***
	(0.0970189)	(0.0984455)
AgeTT	0.0909723***	0.0932732***
	(0.0045642)	(0.0046361)
LGDP it	-0.0013226	-0.0359563
	(0.082508)	(0.0836056)
LGDP jt	6.535918***	55.75452**
	(0.952327)	(22.33319)
LGDP Capita it	0.0007006	0.0178488
	(0.0763645)	(0.0771697)
LGDP Capita jt	7.412465***	66.65153**
	(1.113879)	(26.49573)
LREM	0.008239	-0.1759686
	(0.1437824)	(0.159828)
Openness it	0.0019011***	0.0022993***
	(0.0006429)	(0.0006465)
Openness jt	0.0077344***	0.0827417***
	(0.0025068)	(0.0226229)
Constant	-50.90841***	436.1987
	(7.426493)	(174.0193)
Time Variant Controls	No	Yes
R-Squared	0.2651	0.2819
adjusted R-squared	0.2350	0.24723464

The result on tertiary FDI sectors is the sectors that gives the closest result like in the total FDI result. The tax treaty, tax treaty age, GDP of host country, GDP per capita of host country, openness of host country remains statistically significant and positive. These result may be correlated with the nature of Indonesia tertiary sectors that mainly focus on domestic market.

Tax Treaty and Tax Treaty Age on FDI

Table 5. Result of Tax Treaty and TT Age on FDI with time variance control (Fixed Effect Model)

	Total FDI	Primary FDI	Secondary FDI	Tertier FDI
Tax Treaty	0.8113376***	1.01172***	0.4723276***	1.015799***
	(0.1059877)	(0.0919812)	(0.0936213)	(0.0984455)
Tax Treaty age	0.074205***	0.0745602***	0.0554718***	0.0932732***
	(0.0049912)	(0.0043316)	(0.0044089)	(0.0046361)

In all model, tax treaty and tax treaty age constantly give similar result. Both tax treaty and tax treaty age are statistically significant and positive. It means that the existence of tax treaty between Indonesia and other countries increase the FDI inflows. The result on tax treaty age also shows that the impact of tax treaty on FDI Inflows grow over time. The result support the initial hypothesis that tax treaty do have a positive and significant effect on FDI, in term of FDI total or by sectors are all significant and positive. It also support the hypothesis that the impact of tax treaty on FDI grow over time. This finding support the other finding by Bloningen and Davies (Bloningen and Davies, 2000), Neumayer (2006) and Weyzig (2013). The magnitude are varied. In Total FDI, the existence of tax treaty increase the FDI Total 0.8%. The result also show that every 1 year age of tax treaty increase the FDI Total 0.07%.

Market Size on FDI

Jordaan (2004) statesthatFDI will tend to flow to the countries with big economics size which will provide greater market and larger purchasing power. This happens based on assumption that if investment in the larger economics size countries will bring a higher return on their investment (capital) and higher profits from the investment. Charkrabarti (2001) mentions that these hypothesis of market size supports a theory that a larger market is make use of resources more efficient and maximize the benefit of the economics of scale, the bigger production, the more efficient. Thus, when the market size begin to grows, the FDI tend to increase follows the market expansion, because there is create market which need to exploit. This hypothesis is really popular and based on researcher review, most of the research state the size of host countries market as a significant factor to FDI inflows.

Table 6. Result of Market Size on FDI with time variance control (Fixed Effect Model)

	Total FDI	Primary FDI	Secondary FDI	Tertiary FDI
GDP Home	-0.0346953	-0.0302223	-0.0882842	-0.0359563
	(0.0900108)	(0.0781157)	(0.0795086)	(0.0836056)
GDP Host	65.34795***	24.21369	-16.44371	55.75452**
	(24.04419)	(20.86671)	21.23879	(22.33319)
GDP CAP Home	0.1297365	0.0315485	0.1176875	0.0178488
	(0.0830819)	(0.0721025)	(0.0733882)	(0.0771697)

GDP CAP Host	77.95902***	28.8979	20.01194	66.65153**
	(28.52564)	(24.75592)	(25.19735)	(26.49573)

Our result find that GDP and GDP per capita of host country are statistically significant and positive on FDI Total and Tertiary FDI. It supported the market theory that FDI tends to increase follows the market expansion. In the tertiary sectors of Indonesia, these sectors are sectors that dominantly for domestic market and non-export oriented. The magnitude are varied. For instance, the result indicates that holding constant for other variables, Increase 1% of GDP host increase Total FDI by 65%. Increase 1% GDP Per Capita will lead the Total FDI increase by 77%.

Distance on FDI

Various studies show that the distance between countries is a main determinant of trade between two or more countries (e.g Frankel and Rose, 2002) and investment by multinational companies (Bloningen, et al, 2008). The investor are more likely to put their investment to the countries if they are closer geographically because they share common interest and culture.

Table 7. Result of Distance Factor on FDI with time variance control (Fixed Effect Model)

	Total FDI	Primary FDI	Secondary FDI	Tertier FDI
Remoteness	-0.3073201*	0.0578073	-0.1405498	-0.1759686
	(0.1720728)	(0.1493331)	(0.1519959)	(0.159828)

Our result only find that remoteness as a proxy of distance is statistically significant and negative as our hypothesis in FDI total. Every increase 1% in Remoteness will reduce FDI Total by 0.3%. However, in FDI per sector, remoteness is statistically not significant.

Trade Openness on FDI

The hypothesis of openness on FDI is: the investment are move to the tradable sector which can give the higher return on their investment, thus the degree of openness from countries to international trade is relevant variable in the investor decision. Jordaan (Jordaan, 2004) argues that the effect of openness on FDI is different, based on the type of FDI. When investment are looking for market, which investment in host countries are made to produce the goods and seek the local market as a consumers, protectionism and free trade barriers, which mean a decrease in openness can have a positive impact on FDI. In contrast, multinational firms as investors in export-oriented investments are looking for invest in countries with less trade barriers or more open economy, because this situation led to reduce transaction cost associated with exporting.

Table 8. Result of Trade Openness on FDI with time variance control (Fixed Effect Model)

	Total FDI	Primary FDI	Secondary FDI	Tertier FDI
Openness Home	0.0003159	0.0028125***	0.0000573	0.0022993***
	(0.000696)	(0.000604)	(0.0006148)	(0.0006465)

Openness Host	0.0892992***	-0.0278234	0.0262473	0.0827417***
	(0.0243561)	(0.0211374)	(0.0215143)	(0.0226229)

In our hypothesis, we expect that both openness from home and host country are significant and positive to FDI. However, based on Indonesia data, the result shows that the effect of openness is varied by sectors. In Total FDI, every increase 1 index of host country openness will increase FDI by 8,9%.

Institutional Variables on FDI.

To reduce the potential for spurious finding, additional control variables are included in this statistical model. We use six factors from Institutional data based on International Country Risk Guide (ICRG). The six variables are Government Stability, Investment Profile, Corruption, Law, Democracy and Bureaucracy. Similar with the previous basic model, the regression of these specification are conducted, either with taking into account the year dummies or overlooking them. The result show that the main variables which is Tax Treaty and Tax Treaty ages are remain statistically significant and positive. Both of variables of interest (Tax Treaty and Tax treaty age) consistent and statistically significant and positive. It support the hypothesis and theory. The magnitude also doesn't so much change, the existence of tax treaty will increase FDI Total by 0.84%. And every 1 year of tax treaty will increase FDI Total by 0.07%. After controlling for year fixed effects, both of variables of interest are consistent, statistically significant and positive. The result is robust. The magnitude also change slightly.The statistical model after we add additional control variables are:

$$Ln\ FDI_{ijt} = \beta_0 + \beta_1\ TT_{ijt,} + \beta_2\ TTAGE_{ijt} + \beta_3\ ln\ GDP_{it} + \beta_4\ ln\ GDP_{jt} + \beta_5\ ln\ GDPCAP_{it} + \beta_6\ ln\ GDPCAP_{jt} + \beta_7\ ln\ REM_{ijt} + \beta_8\ TOPEN_{it} + \beta_9\ TOPEN_{jt} + \beta_{10}\ INST_{jt} + \varepsilon_i \quad (7)$$

Where $INST_{jt}$ Institutional Factors (Government Stability, Investment Profile, Corruption, Law, Democracy, Bureaucracy) of *j* countries and *t* time.

Summary on Institutional Variable

Table 9. Result of Institutional Factors on FDI with time variance control (Fixed Effect Model)

	FDI Total	FDI Primary	FDI Secondary	FDI Tertiary
Government Stability	-0.0945527	0.0095546	0.334036	-0.162081
	(0.1618173)	(0.1404329)	(0.142937)	0.1503023
Investment Profile	0.0279259	-0.0022215	-0.0231862	0.0819582
	(0.127004)	(0.1102202)	(0.1121855)	(0.1179663)
Corruption	-0.0475786	-0.0058535	-0.0401168	0.0084927
	(0.2250241)	(0.1952868)	(0.198769)	(0.2090112)
Law	-0.0474717	-0.016974	-0.0571022	0.0441566
	(0.192835)	(0.1673515)	(0.1703356)	(0.1791127)
Democracy	-0.0636436	0.0186542	0.0224275	-0.058693
	(0.0480495)	(0.0416997)	(0.0424433)	(0.0446303)
Bureaucracy	0.1369443	-0.0453822	0.0260535	-0.0284435
	(0.3961651)	(0.3438112)	(0.3499418)	(0.3679737)

The result shows that in Indonesia case, all of institutional variables are statistically not significant. This result contrary with our hypothesis that Institutional variables like government, corruption index, Law, Investment profile, Democracy and Bureaucracy are has positive effect on FDI Inflows. However, Daude and Stein research in 2007 give the same result when they study the role of the quality of institution as a determinant of the location of FDI (Daude and Stein, 2007). Daude and Stein find that Government Stability, Corruption in government, Law and Order, Bureaucracy Quality, and Democracy Accountability are not significant at conventional levels on FDI.

CONCLUSIONAND RECOMMENDATIONS

This study aims to examine the effect of tax treaty on foreign direct investment. By employing panel data analysis to answer the three sub question. For the first sub question, 'How tax treaties affect the Foreign Direct Investment in Indonesia by sectors?', this study finds that the effect of tax treaty on FDI is positively significant. The effect is positive and consistent in all type of FDI by total and by sectors. For the second sub-question, 'Do tax treaties give more effect on Foreign Investment time by time?', this study finds that the effect of tax treaty on FDI is grow over time. The result is consistent among all of the FDI by sectors. For the third sub-question, 'How others FDI determinants (Market Size, Distance, Trade openness, and Institutional Factors) affect Foreign Direct Investment in Indonesia?', this study finds that the result is mixed by sectors. The consistent result on all sector and total FDI is only on Institutional Factors which gives insignificant result in all sectors and in Total FDI.

On the effect of market size on the FDI, result find that GDP and GDP per capita of host country are statistically significant and positive on FDI Total and Tertiary FDI. It supported the market theory that FDI tends to increase follows the market expansion. In the tertiary sectors of Indonesia, these sectors are sectors that dominantly for domestic market and non-export oriented. This research also find that remoteness as a proxy of distance is statistically significant and negative as our hypothesis only in FDI total. However, in FDI per sector, remoteness is statistically not significant. The result on the effect of trade openness on FDI is varied by all sectors. Trade openness of home country significantly positive on FDI only on Total FDI and Tertiary Sectors in Indonesia. However, Trade openness of host country significantly positive in primary and tertiary sectors.

Two recommendations can be formulated in this study. The first is for future policies. Given the positively significant effect of tax treaty on foreign direct investment, Indonesia should push more on sign tax treaty with other countries because until 2019 Indonesia only has seventy tax treaty. The second recommendation is for future studies, with a mixed result on the effect of others FDI determinant, the future research is worth doing, especially in Indonesia.

REFERENCES

Anderson, J.E., and Wincoop, E. (2003). *Gravity with Gravitas: a Solution to the Border Puzzle. American Economic Review. Vol. 93., No.1*. pp. 170-192.

Artige,L.,Nicolini,R.(2005),"*Evidence on the Determinants of Foreign Direct Investment: The Case of Three European Regions*."http://pareto.uab.es/wp/2005/65505.pdf.

Azemar et. Al. (2006*). Do Bilateral Tax Sparring agreements contribute to the attraction of FDI in developing countries? In Tax Public Finance 14* (5. pp 543-562.

Beer,S., and Loeprick,J. (2018). *The Cost and Benefit of Tax Treaties with Investment Hubs: Findings from Sub-Saharan Africa. IMF Working Paper 18* (227).

Blonigen, B. A., and Davies, R. B. (2000). *The effect of Bilateral Tax Treaties on U.S FDI Activity? Working Paper 7929*, National Bureau of Economic Research .

Blonigen, B. A., & Davies, R. B. (2008). *Do Bilateral Tax Treaties Promote Foreign Direct Investment? In Handbook of International Trade (Vol. 2–2*, pp. 526–546).

Borensztein, E., De Gregorio, j., and Lee, j.W. (1995). *How Does Foreign Direct Investment affect Economic Growth? NBER Working Paper 5057*.

Carr, David J.R., Markusen, Markus K.E (2001). *Testing the Knowledge Capital model of the multinational Enterprises , American Economics Review*.

Charkrabarti, A. (2001), "*The Determinants of Foreign Direct Investment: Sensitivity Analyses of Cross-Country Regressions." Kyklos, 54(1),* pp. 89-114.

Christiansen, H. (2002). *Foreign direct investment for development-maximizing benefits, minimising cost: overview. DAFFE/IME(2002), 5*,15.

Chaudhuri, S. and Mukhopadhyay, U. (2014*). Foreign Direct Investment in Developing Countries: a Theoretical Evaluation.* Springer, New Delhi.

Coyne, C.J. and Sobel, R.S. (2010). *How are Institutions Related. Economic Freedom of the world 2010 Annual Report*.

Culem, C. (1988). *The Locational Determinants of Direct Investments among industrialized Countries. Europea Economic Review. Volume 32. April 1988, P. 885-904.*

Davies, R. B. (2004). *Tax treaties and foreign direct investment: Potential versus performance*. *International Tax and Public Finance*.

Dadush, U., Dasguptha, D., and Ratha, D. (2000). *The Role of Short term Debt in Recent Crises. Finance Development Journal. 2000,35.* p 54-57.

Didia, D., Nica, M., and Yu, G. (2015). *The Gravity Model, African Growth and Opportunity Act (AGOA) and US Trade Relations with Sub-Saharan Africa. Journal of International Trade and Economic Development. 24(8),* p. 1-22.

Driffield, N. and Taylor, K. (2000). *FDI and the Labour Market: A Review of the Evidence and Policy Implications. Oxford Review of Economic Policy, 2000 Vol 16 Issue 3*. P. 90-103.

Dogru, B. (2012). *The effect of Institutional Variables on FDI Inflows evidence from upper middle Income Countries. Global Journal of Economics and Business Studies.*

Edwards, S. (1990), "*Capital Flows, Foreign Direct Investment, and Dept - Equity Swaps in Developing Countries" (Working Paper No. 3497 ed.)*: NBER

Feenstra, R.C. and Hanson, G. (1995). *Foreign Investment, Outsourching and Relatives Wages. NBER Working Paper No. 5121*.

Frankel,J. and Rose,A. (2002). *An Estimate of the Effect of Common Currencies on Trade and Income. The Quarterly Journal of Economics, vol.117, issue 2*, 437-466.

Globerman, S. and Shapiro, D. (2002). *Global Foreign Direct Investmnet Flows: the Role of Governance Infrastructure. World Development. 2002, vol.30, Issue 11*, p. 1899-1919.

Hines, J. (1999). *Lessons from Behavioral Response to International Taxation. National Tax Journal, 1999, Vol. 52, Issue 2*, pp. 305-322.

Hummels, D., and Levinson (2009). *Bilateral Linkages with OECD and FDI Inflows in Leading Developing Countries. International Journal of Interdisiplinary Social Sciences. Vol 5 (7),* p. 255-270.

Jaspersen, F., Aylward,A., and Knox, A. (2000). *The Effect of Risk on Private Investment: Africa Compare to the Other Developing Area. In Collier, P. and Pattilo, C. (eds) Investment and Risk in Africa*. St Martin Press, New York.

Jordaan,J.C.(2004),"*Foreign Direct Investment and Neighbouring Influences.*" Unpublished doctoral thesis, University of Pretoria .

Kravis,I.B.,Lipsey,R.E.(1982),"*Location of Overseas Production and Production for Exports by U.S. Multinational Firms*." *Journal of International Economics, 12,* pp.201-223.

Lejour (2015). *The Foreign Investment Effect of Tax Treaties. CPB Netherlands Bureau for Economic Analysis Discussion Paper 265*.

Markusen, J. R., and Markus K.E. (1999a). *Multinational firms reconciling theory and evidence, National Bureau of economic research Working Paper Series, No. 7163.*

Markusen, J. R., & Markus K.E. (1999b). *Discriminating among alternative theories of the multinational enterprises, National Bureau of economic research Working Paper Series, No. 7164.*

Moosa, I.A. (2002). *Foreign Direct Investment: Theory, Evidence and Practice*. Palgrave Publisher Ltd, New York.

Moran, T.H. (1998). *Foreign Direct Investment and Development: The New Policy Agenda for Developing Countries and Economies in Transition.* Institute for Internationaal Economics. Washington DC.

Murciego,C. and Laborda, A.L. (2018). *The effect of Double Taxation Treaties and Territorial Tax System on Foreign Direct Investment: Eidence from Spain. Economics Discussion Papers 2018-21*. Kiel Institute for The World Economy.

Neumayer, E. (2006). *Do double taxation treaties increase foreign direct investment to developing countries? Journal of Development Studies, 43(8*), 1501–1519.

Papathoma, K. (2004). *The Determinant of Foreign Direct Investment. Discussion Paper Series. No. 04/06*. City University London.

Shah, M.H (2009). *Bilateral Linkages with OECD and FDI Inflows in Leading Developing Countries. International Journal of Interdisiplinary Social Sciences. Vol 5 (7),* p. 255-270.

Shah, M.H, and Qayyum, S. (2015). *Impact of Double Taxation Treaties on Inward FDI in Latin American and Caribbean Developing Countries. Business and Economic Review Vol 7(1),* p. 1-18.

Stein, E., and Daude, C. (2017). *The Quality of Institutions and Foreign Direct Investment. Economic and politics 19(3):* pp. 317-344.

Solow, R. M. (1970). Growth Theory: An Exposition. Oxford University Press, New York.

Weyzig, F. (2013). *Tax treaty shopping: structural determinants of foreign direct investent routed through the Netherlands. Int Tax Public Finance 2013, 20*:910-937