Foreign Direct Investment Stock and the Impacts of Institutional Governance and Trade Regulation

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Submitted in partial fulfillment of the requirements for
the degree of Bachelor of Arts in Economics
from Washington & Jefferson College
Fall 2021

Abstract

This paper uses the gravity framework to explore the bilateral foreign direct investment stock that has been sent by OECD economies to Asian economies. The focus is on the relationship between these FDI stock values and measures of governance and trade regulation in the Asian economies. To explore this relationship, two different dependent variables are used. The first is a dummy variable equal to one if there is FDI stock present in the Asian economy from the OECD country and the second is the value of the stock for the subset of countries where an FDI investment position is present. Standard gravity variables are included such as distance between sender and recipient, population of both sender and recipient, and economic size of the sender and recipient in terms of GDP per capita. The findings of this study suggest that stronger institutional governance in the form of control of corruption, rule of law, and voice and accountability will lead to higher amounts of foreign direct investment stock in those Asian economies who are already experiencing some level of investment, but the role of institutional governance is not prevalent when looking only at whether any investment relationship is present.

Introduction

For decades there has been an ongoing debate on the determinants of economic growth, their significance, and related policy prescriptions to aid in development. Although methods of attracting economic growth have varied, in recent years, foreign direct investment has become a major topic of interest. Since there is a strong relationship between FDI and increased labor demand, improved infrastructure, technological transfers, and development of human capital, it has led many economists to suggest that FDI thus bolsters economic growth (Busse and Groizard, 2008; Chowdhury and Mavrotas, 2006).

Due to the growing focus and research on foreign direct investment as a result of its relationship with economic growth, it is essential to know the determinants of FDI and what investors are seeking from recipient countries. Empirical studies have found that governance and trade regulation are major factors when considering investors willingness to invest, thus this model explores various governance and trade indicators to display a comprehensive relationship with FDI stock. To further explain the bilateral relationship between OECD investors and Asian economy recipients, gravity model indicators are utilized as well as numerous control variables.

Literature Review

When observing trends in foreign direct investment it is important to first note the difference between vertical and horizontal FDI. Horizontal FDI is often between developed, industrialized economies seeking to curtail trade barriers, taxes, and other restrictions in attempt to lower input costs and raise overall profit. This is often achieved by duplicating prior existing production models in the region where the goods are going to be sold. Whereas vertical FDI is often between developed and developing economies. Under this system, developed nations are also seeking to lower input costs and raise profit by extracting resources and fragmenting the

production process to take advantage of developing countries' lower labor costs and lower resource costs (Duong et al., 2021).

Despite a large share of global aggregate foreign direct investment going into large, developed economies, the total amount of investment injected into developing regions of the world is also significantly large. Not only is the proportion of FDI inflows larger in that of developing economies, but the past two decades have shown steady increases in global shares which are predicted to continue to rise (Das, 2018). Additionally, Das (2018) found that a large proportion of global FDI inflows have been directed into Asian economies specifically, which are experiencing the largest growth rates relative to other recipients. Further, this raises question as to what major determinants are influencing the significant shift and attractiveness of Asian economies in the eyes of foreign direct investors as well as the role they have played on economic development within the region.

Many studies focusing on the role of government have displayed a positive relationship between quality of intuitions and FDI inflows (Ali et al., 2010; Peres et al., 2018). Trends have shown that nations with strong governance are likely to attract more foreign direct investment compared to their weaker counterparts, but it is also important to note the method of measuring governance as well as the consequential variation in results that may be displayed. One major way of measuring and evaluating institutional governance is through accessing levels of corruption in a state or region. Since many developing regions experience high rates of corruption and collusion among government officials and policy makers, this can negatively impact the willingness of investors to commit to a region if it has poor and unreliable institutions (Raza et al., 2021). This relationship has previously been analyzed with World Governance Indicators such as control of corruption or the Transparency International Corruption Prevalence

Index. Both indicators have displayed significant relationships pointing to their influence on FDI

inflows as the lack of corruption acts as a stimulant to investment and growth (Raza et al., 2021).

Another means of measuring institutional governance is through the World Governance

Indicator rule of law. Since this indicator captures the level of influence of laws and regulations

as well as the extent to which they are enforced, it is has been shown to have a positive

significant relationship with FDI inflows (Peres et al., 2018). Similar to that of the corruption

control indicator provided by the World Governance Indicator, the rule of law index is able to

signify to potential investors the risk level of investing in a foreign country's economy as it

measures the perception of the degree to which individuals hold confidence in the rules,

regulations, and norms of a country.

Also included in the World Governance Indicator is voice and accountability which aims

to measure the extent of citizen participation in government and the level of influence they hold

in determining elected officials and policy changes (The World Bank Group, 2020). Although

this is one of the six indicators created to display level of governance by the World Bank,

existing studies and literature show no strong or significant relationship between voice and

accountability and FDI inflows (Raza et al., 2021; Ahlquist, J.S., 2006).

In contrast to the empirical studies that have displayed strong significant relationships

between institutional governance and foreign direct investment inflows into developing

economies, there have also been results pointing to the opposite result. When observing the

People's Republic of China's vast and extensive Belt and Road Initiative that has been rapidly

expanding since its creation in 2013, there have been clear trends displaying China's preference

to invest in economies with poor institutional governance (Nugent and Lu, 2021). It can be

observed that often this is due to the targeting of specific sectoral issues that China has been

experiencing itself, but this creates concerns of variation in investors motivation to participate in foreign markets (Nugent and Lu, 2021).

When evaluating trends in foreign direct investment and the extent to which a recipient government can influence and attract larger capital flows, it is important to look at the policies and regulations restricting international market. One way of evaluating this relationship is by looking into free trade agreements and regional trade agreements. Often when countries enter into agreements restricting tariffs and taxes, the ultimate goal is to stimulate trade, but they have also been seen as a potential driver of foreign direct investment inflows (Duong et al., 2021).

When looking at the region of Asia specifically, it has been displayed that as nations join regional councils such as Association of Southeast Asian Nations (ASEAN), which foster economic cooperation, not only does this allow for overall increases in trade output, but also increases in foreign direct investors. Through data analysis and observation, India specifically has been seen to have a relatively larger share of FDI within the South Asian region which can be attributed to their larger participation in regional trade agreements compared to their counterparts (Anbumozhi and Kalirajan, 2020).

Previous studies on free trade agreements, regional trade agreements, and market regulation have displayed nations with heavy restrictions and market regulations experience lower levels of foreign direct investment inflows. Although this trend has individual variation due to the wide variety of agreements and different market outcomes a country can experience, there is significant evidence supporting the theory that FDIs are averse to stringent policy application (Busse and Groizard, 2008). Similarly, those who adopt trade agreements or policy such as tax breaks will be able to see positive impacts on foreign direct investment as long as regulation is managed efficiently (Busse and Groizard, 2008). This further supports the idea that

not only are trade agreements and regulation critical inputs when looking to attract FDI, but governance and rule of law must be strong. Without strong institutions or governance, free trade agreements (FTAs) and other policy likely cannot be taken advantage of in a manner which prioritizes FDI growth.

Although the relationship between foreign direct investment inflows and FTAs seems to be overall positively related, the relationship depends further upon the type of FDI inflows. As mentioned earlier, horizontal FDI seeks to curtail trade barriers and restrictions in attempt to lower input costs and raise overall profit. Since participation in free trade agreements (FTAs) and regional trade agreements (RTAs) address these issues directly, there is no need for investors to inject capital into a foreign economy when they can easily export to the economies in which they have mutual trade agreements with, thus creating a negative relationship between the variables (Duong et al., 2021). Opposite to these findings, it has been displayed that vertical FDI, which depends on extracting resources and fragmenting the production process to take advantage of low labor and resource costs, has displayed increases in FDI inflows (Duong et al., 2021). Luckily, horizontal trade is often completed between developed and industrialized economies whereas vertical trade is often completed between developing economies, suggesting that FTAs and RTAs will have positive relationship with FDI inflows in developing Asian economies.

Data and Methodology

This research model aims to display a causal relationship between foreign direct investment stock in Asian economies from OECD countries and the role institutional governance and trade regulation play on their investment decisions. Due to significant empirical evidence

pointing toward the importance of strong governance and low levels of trade regulation, it is predicted that increases to both will lead to higher returns of FDI stock in Asian economies.

To answer the question of how institutional governance and trade regulation impacts bilateral FDI stock I observe 22 OECD countries and 23 Asian economies. The Organization for Economic Co-operation and Development, otherwise known as the OECD, was formed in the early 1960's with the aim of spreading economic prosperity. This model utilizes all OECD nations which have been established members since the 1970's and earlier due to their long-term established economic trade relations. In this model, OECD members are observed as the senders of foreign direct investment and Asian economies are observed as the receivers. The Asian economies used in this model are based on the OECD's definition of Asian countries excluding the Gulf Arabian countries and Near Middle East countries included which are typically not characterized or observed as Asian economies (OECD, 2021). Additionally, the sample of Asian economies is further confined to nations formally recognized by the United Nations, with the exception of the Democratic People's Republic of Korea due to overall lack of data and predicted reporting bias (United Nations, 2021). The 22 OECD countries and 23 Asian countries will thus provide a framework of 506 observations to utilize in the model.

To display the qualitative relationship between these variables, this model uses the gravity model framework to display the relationship between the main variables of interest and FDI stock. Empirical evidence has overwhelmingly pointed toward the importance of size and location in investment decision. Thus, the gravity model will provide a foundation for observing the relationship displayed between the senders and the recipients. Although this model is limited to 2019 cross-sectional data, I predict that this will not have any significant negative implications

on the strength of the model as the main variables of interest are not easily influenced or changed by short-run factors but are rather persistent over time.

The main dependent variable in this model is outward foreign direct investment stock by country in millions of United States dollars for the year of 2019. This variable measures the total level of annual direct investment stock as the level of equity in net loans received by a recipient country from the reporting OECD country. Although many studies have utilized FDI flow data, it is important to note the high level of volatility over time associated with the data. By using FDI stock data rather than FDI flow data, this allows the model to capture a more stable and accurate representation of the true level of foreign investment benefiting the recipient country in a given period.

A significant setback with this variable is due to the limitations caused by the non-publishable and confidential values that are withheld within the FDI statistics (OECD, 2021). To best approach the limitations created by the restricted availability of data, this model utilizes two different dependent variables. The first will feature all recipient countries, including confidential values, that had any level of FDI stocks from OECD countries. These regressions will observe FDI stock as a dummy variable to display the probability of whether governance and trade regulation has significant influence over foreign investment, with 1 a representing those who received a reported value of FDI or a confidential value and a 0 representing those who received nothing. The second dependent variable will utilize the natural log of FDI stock for recipients with reported values to display relatively more specific relationships related to level and size of investment attained by recipient Asian economies. This will restrict the sample to only those country pairs where there was a reported FDI stock level aside from 0. Although this reduces the number of observations significantly, this allows the model to display a clear relationship

between country pairings who have already received some level of FDI stock within the year 2019.

Since the main goal of the model is to display the relationship between bilateral FDI stock and governance and trade regulation, the main variables of interest are outlined by the World Governance Indicators, participation in free trade and regional trade agreements, and other historical factors. The World Governance Indicators utilized in this model are control of corruption, rule of law, and voice and accountability. All the indexes are based on a scale of –2.5 to 2.5 but are additionally ranked by percentile. Control of corruption is the index that observes the perception of the degree in which public power is utilized for private interests in governments, public officials, police forces, education systems, medical systems, and beyond. It is important to note that although there has been healthy debate on the positive and negative implications of corruption prevalence, the overall trends correlate higher levels of corruption with less trust and willingness to invest. For this reason, I predict that this model will support the positive relationship between FDI stock and control of corruption (Kaufmann & Kraay, 2021). In addition to control of corruption, rule of law has been displayed as an integral variable to consider when observing FDI patterns. The index observes the perception of the degree to which individuals hold confidence in the rules, regulations, and norms of a country. The quality of these rules and norms can be displayed through crime rates, intellectual property protection, property rights, the police system, the judicial system, and more. As supported by literature, lower levels of rule of law are often associated with higher risk due to the potential negative outcomes associated with mistrust in the governance and legal frameworks of a potential investment location. Due to the negative sentiments and risk involved with lower levels of rule of law, I

predict there will be a positive relationship associated with FDI stock (Kaufmann & Kraay, 2021).

The final World Governance Indicator that will be utilized in this model is the voice and accountability index. Voice and accountability observes the perception of the degree to which citizens have freedom of press, freedom of speech as well as freedom to choose and select their own leaders. For this variable, I predict that higher levels of voice and accountability will lead investors to be more confident in investing FDI stock, thus there will be a positive relationship displayed. This index, like control of corruption and rule of law, is also measured on a scale of -2.5 to 2.5, with higher scores representing higher quality of governance, as well as in percentile rank term, varying from 0, the lowest level of governance, to 100, the highest level of governance (Kaufmann & Kraay, 2021). For all WGI variables in the regression I utilized the percentile ranking method.

Other primary variables in my model that seek to display a relationship between FDI stock and trade regulation are the presence of regional trade agreements, RTAs, as well as free trade agreements, FTAs. To measure the presence of RTAs and FTAs, this model utilizes the trade agreements by country database provided by the Asia Regional Integration Center. This database details all trade agreements within the Asia – Pacific region based off signatory status providing a comprehensive overview of all FTAs and RTAs (Asian Development Bank, 2021). In this model, FTA and RTA presence with mutual signatory states between sending and recipient economies will be represented by a dummy variable, 1 signifying there are mutual trade agreements, and 0, signifying there is not mutual trade agreements. Due to the decreased input costs associated with the presence of trade agreements, there is likely to be a higher level of attraction for potential foreign direct investors. Due to the lower costs and associated higher rates

of returns, I predict that participation in free trade agreements and regional trade agreements will have a positive relationship with FDI stock.

In addition to the presence of FTAs and RTAs, two additional critical variables used to represent trade regulation in this model are trade openness and the percent of duty-free lines with most favored nations (MFNs). To measure trade openness, this model utilizes the United Nation's statistical commission database. Through observing GDP by expenditure (at constant 2015 prices, USD), one is able to calculate openness in terms of imports and exports of goods and services in the recipient country by aggregating imports and exports relative to annual GDP output thus displaying the relative openness of the economy. Due to the attractiveness of open economies and the higher relative likelihood of becoming an economic trading partner with those who are open, I predict that this model will display a positive relationship between trade openness and FDI stock. The duty-free lines percentage for Most Favored Nations displays the proportion of goods lines that that have no tariffs or other financial impositions on them for those who are considered a most favored nation. The clause of Most Favored Nations establishes that any nation with the MFN status cannot be treated with less advantages or privileges than others with MFN status by any party. Although the name seems deceptive, it ensures a higher level of equality among trading partners. For this reason, I believe that higher levels of duty-free lines for MFNs would lead to higher returns of FDI stock, thus creating a positive relationship between the two.

Other variables included in this model are three dummy variables representing former colony status, common languages, and geographical location regarding maritime trade which are all outlined extensively by the CIA World Factbook. Often former colonies and their colonizers have continual long-standing relationships and residual influence following independence

(Central Intelligence Agency, 2021). For this reason, I predict that the presence of a former colony relationship between OECD economies and Asian economies will be positively related with higher levels of FDI stock. Former colonial presence is represented by a 1 whereas lack of former colonial present is represented by a 0. Additionally, the presence of at least one mutually spoken language increases the capability and general function of business relative to economies without a common language. Without the requirement for translation services or bilingual contracts and agreements, investors will have lower relative costs in regions that have a strong presence of common languages (Central Intelligence Agency, 2021). I predict that this will result in a positive relationship between FDI stock inflows into Asian economies when there is at least one common language spoken between the sender and recipient. For this dummy variable, 1 is attributed to common nationally recognized language or a language that is spoken by over 75% of the population, and 0 is attributed to no common language between the county pairing. The last dummy variable included is costal status with a 1 attributed to costal Asian nations and a 0 attributed to landlocked Asian nations. Due to increased access to trade routes and maritime trade that is not available to landlocked countries, I predict that there will be a positive relationship between a presence of costal Asian economies and FDI stock (Central Intelligence Agency, 2021).

When looking into the key variables utilized by the gravity model, it is important to include GDP per capita and population size of both sender and recipient nations as well as the relative distance between the two countries. GDP per capita is the one if the most efficient and effective methods of determining the individual average production and income level of each individual in the nation. By utilizing the natural log of GDP per capita for both sending and receiving economies, the gravity model is able to demonstrate the relationship between economic

capacity and the likelihood of experiencing increases in FDI stock (United Nations, 2021).

Additionally, it is critical to include the natural log of population to represent the size and

capacity of nations relative to each other. Both GDP per capita and population are based in 2019

and were collected from the United Nations Statistics Division database. Based on extensive

literature surrounding the gravity model, I believe that both GDP per capita as well as population

size will have a positive relationship with FDI stock because higher levels of production

capability as well as overall larger capacity and market size will lead to higher levels of interest

in investment. The last necessary variable to satisfy the gravity model is the natural log of

distance. This variable is the measure of distance, in miles, from sender OECD capitals to

receiver Asian capitals (Geobytes, 2021). I predict that more distance between capitals will

display a negative relationship with FDI stock inflows into Asian economies from OECD

economies. Based on prior existing research and conclusions, it has been displayed those

countries who are closer in terms of geographical location are more likely to receive foreign

direct investment opportunities, thus greater distance will lead to lower levels of FDI stock.

The final two control variables included in this model are gross gixed gapital formation

as a ratio of GDP and related currencies. Gross fixed capital formation is "measured by the total

value of a producer's acquisitions, less disposals, of fixed assets during the accounting period

plus certain additions to the value of non- produced assets (such as subsoil assets or major

improvements in the quantity, quality or productivity of land) realized by the productive activity

of institutional units" (UN Stats, 2021). By making this measure a ratio of GDP, we are able to

see relative levels of investment in relation to overall annual output thus, I believe this variable

will have a positive relationship with FDI stock because of the attractiveness of higher levels of

domestic investment. Finally, to measure related currencies, this model utilizes the IMF 2020

Annual Report on Exchange Arrangements and Exchange Restrictions. By utilizing the

Monetary Policy Framework exchange tables, this model is able to use fixed or pegged currency

arrangements anchored to a common currency of a sending OECD country as a dummy variable.

This will allow the dummy to display country pairings with common currencies relative to all

other currency arrangements. Asian countries with exchange rate regimes described as exchange

arrangements with no separate legal tender, currency board arrangements, other conventional

fixed peg arrangements, and pegged exchange rates with horizontal bands are described with a 1.

The relationships given a 1 are all between Asian nations and OECD nations who utilize the

Euro and USD under the previously described exchange arrangements. All other less stabilized

currency arrangements between country pairs as well as those without any relationship are

observed as a 0. This variable displayed as a dummy allows the model to differentiate recipients

who have closer ties to their currency which translates to more trust and the potential for

investors to face less obstacles in relation to currency transfers. For this reason, I predict that the

presence of related currency with strong arrangements will result in positive relationship with

FDI stock inflows into Asian economies.

The variables and methodology previously described will be explained by the following

econometric equation for the regressions:

$$
\begin{aligned}
Ln(FDIstock)_{ij} = {}& \beta_0 + \beta_1 ln(GDPcap)_i + \beta_2 ln(GDPcap)_j + \beta_3 ln(Distance)_{ij} + \beta_4 ln(Population)_i \\
& + \beta_5 ln(Population)_j + \beta_6 RTA\ and\ FTA_{ij} + \beta_7 ControlCorruption_j + \beta_8 RuleofLaw_j + \\
& \beta_9 VoiceAccountability_j + \beta_{10} FormerColony_{ij} + \beta_{11} CommonLanguage_{ij} + \beta_{12} Coastal_j + \\
& \beta_{13} \%DutyFree_j + \beta_{14} Openness_j + \beta_{15} Currency_{ij} + \beta_{16} GrossFixedCapForm_j + U_{ij}
\end{aligned}
$$

Results

The results using FDI stock in millions of US dollars as well as FDI stock presence as a

dummy variable as dependent variables are based on a series of eight Ordinary Least Squares

(OLS) regressions displayed in Tables 1 and 2 for the OECD and Asian economies in 2019. After constructing a correlation matrix for the independent variables, it was shown that multicollinearity was not a concern for most of the variables, therefore no two or more variables were highly correlated with one another. The exceptions in this case are three of the main variables of interest displaying governance. Due to the similar patterns in measuring the World Governance Indicators, control of corruption, rule of law, and voice and accountability, it is not surprising that there was high correlation between these variables. To avoid multicollinearity, four separate regressions are ran for each dependent variable as displayed in Table 1 and 2. In addition, the White's and Breusch-Pagan's test for heteroskedasticity were conducted to show if heteroskedasticity was present or not. Both tests did display a presence of heteroskedasticity which were corrected by utilizing robust standard errors.

When looking at bilateral FDI stock from OECD economies into Asian economies as a dummy variable, the variable is able to account for all investment relations even if the FDI stock information was confidential or not reported. The results displayed in Table 1 suggest that the main governance variables of interest are not statistically significant, thus disproving my hypothesis that higher levels of governance would lead to higher levels of FDI stock from OECD countries into Asian economies. Additionally, the model also shows that only one trade variable of interest, rule of law, is statistically significant (at the 5% level). These results conclude that a one unit increase in percentile rank of rule of law will lead to a 0.2 percentage point increase in the probability that FDI stock will be present in the Asian economy. Although these results align with the prediction that higher rule of law will increase the probability that FDI stock will be present, the lack of other significant variables prevents the model from displaying a clear relationship between governance and the probability of obtaining FDI stock presence.

When looking at the trade variables of interest, there is only one statistically significant variable, percentage of duty-free lines. This variable which is significant at the 1 percent level suggests that one percentage point increase in the ratio of duty-free lines will lead to a 0.9 to 1.0 percentage point decline in the probability that FDI stock will be present in the Asian economy, which is the opposite of what was predicted. This is potentially due to negative perceptions regarding the most favored nations clause or potentially due to the overall higher rates of duty-free line usage in the Asia region relative to other areas such as Latin America. Regardless of the underlying potential reasons for the negative relationship between duty-free lines and FDI stock, the model cannot conclude that less trade regulation will lead to a higher probability that FDI stock will be present in an Asian economy.

The results displayed in Table 1 suggest that there are 4 other variables significant at the 1 percent level: population of sender, population of receiver, GDP per capita of sender, and GDP per capita of receiver. A one percent increase in population of an Asian economy will lead to a 0.081 percentage point increase in the probability that FDI stock will be obtained, and a one percent increase in population of an OECD economy will lead to a 0.083 to 0.087 percentage point increase in the probability that FDI stock will be present in the Asian economy. These results reenforce predictions of the gravity model framework suggesting that larger populations in both sending and recipient countries will increase the capacity for foreign investment. Additionally, one percent increase in GDP per capita of an Asian economy will lead to a 0.232 to 0.235 percentage point increase in the probability that FDI stock will be present in the Asian economy, and a one percent increase in GDP per capita of an OECD economy will lead to a 0.07 to 0.111 percentage point increase in the probability that FDI stock will be present in the Asian economy. As GDP per capita grows in both sender and recipient countries, not only are the

economy expanding relative to their populations, but this is often accompanied by sectoral

expansions and overall increases in consumption. Thus, the model's results align with

predictions that increases in GDP per capita will attract investors and increase the probability

that FDI stock will be present.

The final gravity model variable, distance between the sender and receiver, is significant

at the 10% level. Thus, a one percent increase in the distance between the sender and receiver

will lead to a 0.9 to 1.0 percentage point decrease in the probability that FDI stock will be

present in the Asian economy. Again, this confirms the model's predictions of all gravity model

indicators including distance which increases to will decrease the probability of FDI stock

presence.

Table 1: FDI stock ij (dummy)

	Regression 1	Regression 2	Regression 3	Regression 4
Constant	-4.63***	-4.58***	-4.24***	-4.60***
	(0.723)	(0.735)	(0.749)	(0.722)
Control of Corruption$_j$		0.005		
		(0.001)		
Rule of Law$_j$			0.002**	
			(0.0013)	
Voice and Accountability$_j$				0.0013
				(0.0009)
RTA or FTA presence $_{ij}$	0.046	0.047	0.041	0.061
	(0.043)	(0.043)	(0.043)	(0.043)
ln(distance$_{ij}$)	-0.106*	-0.109*	-0.117*	-0.115*
	(0.06)	(0.06)	(0.062)	(0.064)
ln(population$_i$)	0.082***	0.081***	0.081***	0.081***
	(0.015)	(0.015)	(0.015)	(0.015)
ln(population$_j$)	0.087***	0.087***	0.083***	0.085***
	(0.023)	(0.01)	(0.01)	(0.01)
ln(GDP per capita$_i$)	0.232***	0.232***	0.235***	0.234***
	(0.04)	(0.04)	(0.04)	(0.04)
ln(GDP per capita$_j$)	0.11***	0.103***	0.07**	0.111***
	(0.023)	(0.031)	(0.034)	(0.023)
Common Language $_{ij}$	0.042	0.041	0.034	0.038
	(0.037)	(0.037)	(0.037)	(0.037)
Former Colony $_{ij}$	-0.022	-0.023	-0.025	-0.032
	(0.082)	(0.08)	(0.083)	(0.083)
Fixed or Pegged Exchange Rate $_{ij}$	-0.114	-0.112	-0.09	-0.107
	(0.20)	(0.204)	(0.207)	(0.21)

Coastal$_j$	0.058	1.07***	0.075	0.054
	(0.066)	(0.07)	(0.066)	(0.065)
GDP Growth $_j$	0.012	0.013	0.015	0.014
	(0.014)	(0.013)	(0.013)	(0.083)
% of Duty Free lines $_j$	-0.009***	-0.0099***	-0.01***	-0.009***
	(0.003)	(0.003)	(0.003)	(0.003)
Gross Fixed Capital Formation/GDP$_j$	-0.004	-0.004	-0.005*	-0.004
	(0.003)	(0.003)	(0.0001)	(0.003)
Openness $_j$	0.0002	0.0002	0.0000	0.0001
	(.0001)	(0.0001)	(0.0001)	(0.0001)
Number of Observations	506	506	506	506
R^2	0.37	0.37	0.375	0.372
F-Stat	31.75	29.77	30.21	30.54

Note: Robust standard errors for independent variables are shown in parentheses. Years are controlled for but the coefficients are not reported. The symbols *,**,*** correspond to a 10% , 5%, and 1% level of significance.

Table 2 depicts the second four regressions utilizing the 2019 FDI stock data in millions of USD. Regression one using only the main trade variables of interest, regression two using control of corruption, regression three using rule of law, and regression four using voice and accountability. These results suggest that there are 12 variables which are significant at the 1% level. Some significant results that stand out suggest that a one percentile increase in control of corruption will result in a 3.7 percent increase in FDI stock in an Asian economy, a one percentile increase in rule of law will result in a 3.7 percent increase in FDI stock in an Asian economy, and a one percentile increase in voice and accountability will result in a 2.2 percent increase in FDI stock in an Asian economy. These results support the hypothesis that higher levels of governance attract and will lead to higher levels of FDI stock from OECD economies. Unlike the first table, displaying the probability of obtaining FDI stock, these results show a clear relationship between increased governance and the increased returns that will be obtained by Asian countries who already have some level of FDI stock.

When looking at the main trade indicators of interest, only two of the variables are statistically significant, fixed or pegged exchange rates and percentage of duty-free lines. The

model found that Asian economies who have a fixed or pegged exchange rate with the sender will experience 1581.04 to 2402.81 percent higher FDI stock levels than those economies who do not have a fixed or pegged exchange rate with the sender. This relationship which is significant at the 1 percent level overwhelmingly supports the prediction that common currencies will lead to less friction and costs associated with stock investment, but it is also important to note the low number of country pairings who actually have a fixed or pegged currency since most nations who do have arrangements are arranged with the United States Dollar or the Euro. The only other significant trade variable is percentage of duty-free lines. This variable shows that when controlling for governance, a one percentage point increase in the share of duty-free lines for most favored nations will lead to a 8 to 10 percent decrease in FDI stock. Not only does this contradict the predictions that more unregulated lines will lead to higher FDI, but there is also an interesting change from when governance is not controlled for and when it is controlled for. When omitting all three World Governance Indicators, percent of duty-free lines is positive and significant at the 5 percent level, but as soon as the WGIs are included, the relationship becomes negative. This may be due to the negative sentiments associated with the most favored nation clause which allows more nations to engage in trade unaligned with practices preventing corruption and related activities. Overall, the lack of statistical significance as well as contradictions to predicted relationships prevents me from rejecting the null hypothesis that less trade regulation will not lead increases in FDI stock in Asian economies.

As supported by the gravity model, a one percent increase in population of an Asian economy will lead to a 0.86 to 0.898 percent increase in FDI stock, a one percent increase in population of an OECD economy will lead to a 0.779 to 0.807 percent increase in FDI stock. As the population increases in both sender and recipient countries, there is a higher capacity for

trade and investment as well as increases in demand, thus the results support the theory that higher population will lead to higher stock levels. A one percent increase in GDP per capita of an Asian economy will lead to a 2.436 to 2.498 percent increase in FDI stock, and a one percent increase in GDP per capita of an OECD economy will lead to a 1.098 to 1.809 percent increase in FDI stock. Aligned with predictions of the gravity model theory, this model shows that a one percent increase in distance in miles from the sender to the recipient will lead to a 1.2 to 1.49 percent decrease in FDI stock. As the sender and recipient of stock are further apart, there are higher costs associated with trade thus the model confirms the theory that greater distance discourages investors.

Other significant results at the 1 percent level are former colony status and GDP growth rate, thus Asian economies who were previously a colony of the OECD economy will experience 222.84 to 358.59 percent higher FDI stock levels than those economies who are not a former colony of the sender, and a one percentage point increase in GDP growth in the Asian economy will result in a 35.9 to 45.5 percent increase in FDI stock. Unfortunately, contrary to predictions that higher levels of gross fixed capital formation as a ratio of GDP will lead to higher levels of FDI stock investment, the model displays that a one percentage point increase in gross fixed capital formation as a ratio of GDP will lead to a 7.2 to 9.1 percent decrease in FDI stock which is significant at the 1 percent level.

These results also suggest that one variable, common language, is significant at the 5% level, but the results are opposite of what was predicted. The model displays that Asian economies who have a common language with the sender will experience 42.9 to 80.9 percent lower FDI stock levels than those economies who do not have a common language with the sender.

Table 2: Ln(FDI stock$_{ij}$ millions of USD)

	Regression 1	Regression 2	Regression 3	Regression 4
Constant	-53.74***	-49.36***	-48.00***	-52.05***
	(5.82)	(6.11)	(6.16)	(5.84)
Control of Corruption$_j$		0.037***		
		(0.010)		
Rule of Law$_j$			0.037***	
			(0.012)	
Voice and Accountability$_j$				0.022***
				(0.006)
RTA or FTA presence $_{ij}$	0.377	0.452	0.372	0.479*
	(0.287)	(0.279)	(0.282)	(0.281)
ln(distance$_{ij}$)	-1.20***	-1.26***	-1.304***	-1.49***
	(0.443)	(0.452)	(0.457)	(0.482
ln(population$_i$)	0.876***	0.873***	0.86***	0.898***
	(0.115)	(0.111)	(0.112)	(0.111)
ln(population$_j$)	0.807***	0.779***	0.779***	0.795***
	(0.116)	(0.117)	(0.119)	(0.112)
ln(GDP per capita$_i$)	2.436***	2.495***	2.436***	2.498***
	(0.322)	(0.326)	(0.332)	(0.316)
ln(GDP per capita$_j$)	1.809***	1.121***	1.098***	1.657***
	(0.22)	(0.313)	(0.312)	(0.223)
Common Language $_{ij}$	-0.357	-0.59**	-0.593**	-0.526**
	(0.26)	(0.278)	(0.275)	(0.264)
Former Colony $_{ij}$	1.523***	1.358***	1.497***	1.172***
	(0.428)	(0.413)	(0.433)	(0.414)
Fixed or Pegged Exchange Rate $_{ij}$	2.822***	2.915***	3.22***	2.903***
	(0.446)	(0.442)	(0.45)	(0.443)
Coastal$_j$	-0.484	-0.295	-0.214	0.047
	(0.749)	(0.759)	(0.741)	(0.715)
GDP Growth $_j$	0.455***	0.391***	0.359***	0.431***
	(0.125)	(0.127)	(0.131)	(0.12)
% of Duty Free lines $_j$	0.084**	-0.052	-0.08**	-0.10***
	(0.035)	(0.031)	(0.034)	(0.035)
Gross Fixed Capital Formation/GDP$_j$	-0.091***	-0.08***	-0.072**	-0.08***
	(0.026)	(0.027)	(0.028)	(0.026)
Openness $_j$	0.0005	0.000	-0.0006	-0.0002
	(0.001)	(0.001)	(0.001)	(0.001)
Number of Observations	257	257	257	257
R^2	0.64	0.66	0.66	0.66
F-Stat	31.64	31.45	31.51	31.32

Note: Robust standard errors for independent variables are shown in parentheses. Years are controlled for but the coefficients are not reported. The symbols *,**,*** correspond to a 10% , 5%, and 1% level of significance.

Conclusion and Limitations

When evaluating foreign direct investment stock as a dummy variable, the model is able to account for a larger sample which is significantly reduced when taking the natural log of real FDI stock values. Although this dependent variable has more observations, there is less overall explanatory power in the results. There are unclear results connecting level of governance with the probability that OECD foreign direct investors will purchase stock within an Asian economy. Likewise, we cannot derive any major connections between trade relations and probability that FDI stock will be obtained. Despite the significantly reduced sample when observing the natural log of FDI stock in millions of USD as the dependent variable, the results strongly suggest that higher levels of institutional governance will lead to higher FDI stock levels for those Asian economies who have already received investment from OECD economies.

For further research it would be useful to expand the dataset to a larger sample across different regions. This would allow for a broader expansive outlook on the determinates of foreign direct investment in regions who have vastly different governance levels and trade relationships with OECD economies.

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Nations - Basic Data Selection.

Appendix

Model Variables

Variable	Source	Predicted relationship
FDI Stock (DEPENDENT) (2019)	OECD	N/A
GDP per capita (2019)	United Nations Statistics Division Database	Positive
Distance from capital i to capital j (miles)	Geobytes	Negative
Population (millions) (2019)	United Nations Statistics Division Database	Positive
Free Trade Agreement presence	Asian Development Bank	Positive
Control of Corruption Index (2019)	World Bank, World Governance Indicators	Positive
Rule of Law Index (2019)	World Bank, World Governance Indicators	Positive
Voice and Accountability Index (2019)	World Bank, World Governance Indicators	Positive
Former Colony Status	CIA World Factbook	Positive
Common Language Status	CIA World Factbook	Positive
Coastal	CIA World Factbook	Positive
MFN – Duty Free Line % (2019)	World Trade Organization	Positive
Openness (2019)	United Nations Statistics Division Database	Positive
Currency Relation /Fixed or Pegged common currency (2020 report, 2019 data and statistics)	IMF 2020 Annual Report on Exchange Arrangements and Exchange Restrictions	Positive
Gross Fixed Capital Formation as a ratio of GDP (2019)	United Nations Statistics Division Database	Positive
GDP annual growth rate aggregate (2015-2019)	World Bank, World Development Indicators	Positive

Summary Statistics

	Mean	Std Dev	Min	Max
FDI Stock as a dummy	0.68	0.468	0	1
Ln(FDI stock)	6.19	3.03	0	13.61
Control of Corruption$_j$	44.07	26.91	6.7	99
Rule of Law$_j$	46.96	25.5	4.3	97.6
Voice and Accountability$_j$	43.95	18.49	3.4	71
RTA or FTA presence $_{ij}$	0.49	0.50	0	1
ln(distance$_{ij}$)	8.53	0.35	6.577	9.22
ln(population$_i$)	16.88	1.21	15.38	19.61
ln(population$_j$)	17.03	2.24	12.97	21.08
ln(GDP per capita$_i$)	10.65	0.48	9.11	11.35
ln(GDP per capita$_j$)	8.49	1.25	6.15	11.06
Common Language $_{ij}$	0.26	0.44	0	1
Former Colony $_{ij}$	0.05	0.236	0	1
Fixed or Pegged Exchange Rate $_{ij}$	0.07	0.08	0	1
Coastal$_j$	0.78	0.41	0	1
GDP Growth $_j$	4.65	2.02	0.476	7.393
% of Duty Free lines $_j$	9.21	5.9	0	22.1
Gross Fixed Capital Formation/GDP$_j$	28.43	8.27	12.48	46.74
Openness $_j$	108.97	89.64	27.27	378.03