The effects of international treaties and institutions on FDI

By Luc Boelhouwers

Abstract

International commitments such as free trade agreements and membership to WTO will make a country more dedicated to its economic policy, and in turn will attract foreign investments. This paper focuses on the effects of these international commitments on foreign direct investments by looking at 101 developing countries ranging from 1995 – 2015. The results show that for membership in the WTO/GATT a significant effect was found. However, for Free Trade agreements no significant effects has been found.

Contents

Introduction

With globalization, the world economy, nowadays, has never been more connected. This can be observed in the growing trend in mergers & acquisitions across the globe, and new investments in low-cost countries to outsource labour-intensive manufacturing jobs. These investments are called foreign direct investments (FDI). These investments are done by foreign company into a domestic company. Several papers state that FDI contribute towards economic growth, technology transfer and employment (Borensztein, De Gregorio, & Lee, 1998) (Buthe & Milner, 2008), and because FDI have a positive effect on a country's economy, it is important to know what factors benefit to these investments.

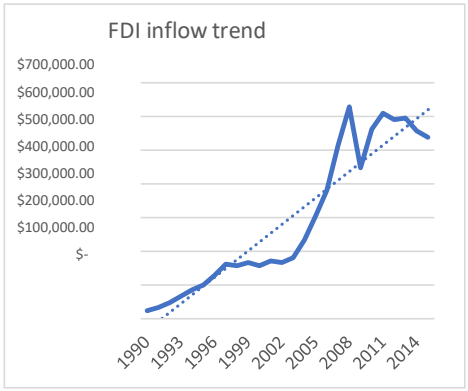


Figure 1 FDI trend of developing countries, based on UNCTAD data in millions

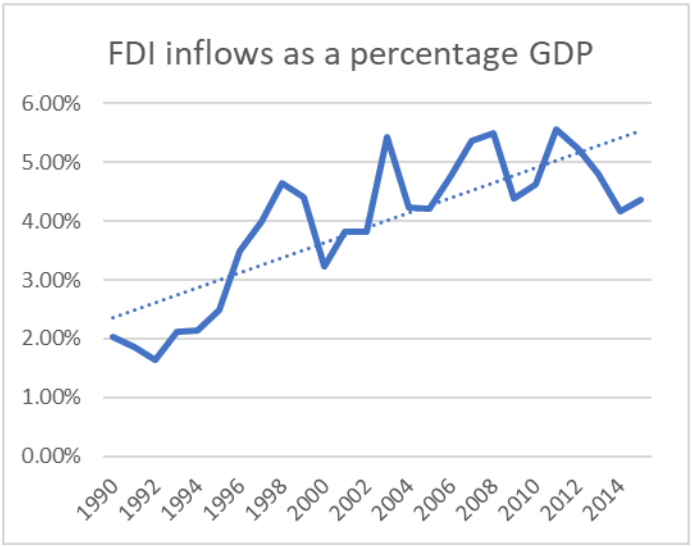


Figure 2 FDI inflows on GDP of developing countries, based on UNCTAD data

The reasons for a FDI is, that a company wants to outsource its labour to a country in which the labour costs are much lower or wants to expand to a foreign market. By outsourcing its labour to a foreign county, the company imports the goods from its foreign subsidiary, initiating trade between the two countries. This happens only when the costs of domestic production exceed the costs of foreign production and transportation. Normally, when a company is importing products, it must pay customs duty, due to that these countries have trade tariffs imposed on each other, making the importation more expensive. Subsequently, the company has less incentive to outsource its

labour and invest in a foreign company. On the other hand, lower trade barriers might have the opposite effect when a company wants to expand to a new market. Instead of initiating an investment in a country, it could just export its product to a foreign importer, because of the lack of trade barriers. Maybe, trade barriers cause FDI to avoid these trade barriers, by producing and selling in a foreign country (Reed, Lira, Lee, & Lee, 2016).To find those net effects, an empirical analysis is needed.

On January 24th, 2017, the United States breaks away from a multi-lateral agreement regarding free trade with the countries bordering the Pacific Ocean. Trumps argument to this withdrawal was it was an unfair trade agreement and it threatens US jobs and allows foreign companies to sue the US government whenever it does not uphold the terms negotiated in TTP and thus is bad for the US economy (Foster & Smith, 2017). The reasons why Trump breaks away from this agreement are questionable. He points out the main downsides of these agreements, like loss of US jobs. The loss of jobs is one of the main reasons to impose trade barriers on foreign goods and services, according to economic theories.

Because of this reason, this paper focusses on what the effects on FDI are whenever trade barriers are not in place. That is why this paper is primarily about what the effects of bilateral trade agreements and membership of WTO/GATT are on FDI, in which taken into regard several other factors which could be of importance, like GDP per capita, the valuation of a currency for that specific country compared to the dollar, trade deficit and economic freedom.

A paper by Büthe and Milner (2008) which has researched this field found evidence for a positive significant effect of free trade agreements and membership of GATT/WTO, however it is a bit outdated. Like their paper, only developing countries with more than one million inhabitants will be included.

Therefore, this paper uses more recent data to find if these effects can still be found in today's economies. The data being used are mostly datasets which are available to the public, and are mostly provided by the United Nations Trade and Development. This data is a dataset ranging from 1995 until 2015, compared to the data from the Büthe and Milner paper, which ranged from 1970-2000.The paper will use fixed effect regression model to estimate what effect the FDI, membership to GATT/WTO, and the previously mentioned variables have on FDI.

Literature review

In this section, some empirical studies are reviewed that analyzed the effects of trade agreements on FDI. This section also mentions the effects of other explanatory variables on FDI. After discussing the economic and political variables, the importance of international institutions and commitments will be discussed, which this paper is primarily about.

Economic variables

Pan Long Tsai (1994) researched the determinants of FDI in a country. He uses a two-equation model to capture the economic factors that influence FDI. In his research he finds that the annual growth of GDP, GDP per capita, trade account balance and the nominal hourly salary in the manufacturing sector influence the FDI per capita significantly. He also finds a positive effect of FDI (as a percentage of GDP) on economic growth. This can be logically explained by the fact that FDI causes external capital and spreads throughout the economy, for example it rises the employment rate (Tsai, 1994). This model also argues that the trade balance will influence the FDI, under the assumption that when a country has a trade deficit, it is more likely to try to attract FDI to boost its exports, by facilitating favourable policies to streamline the administrative procedures, which has been researched by Earl H. Fry (Fry, 1983).

Froot and Stein (1991) also research the effects of determinants on FDI. They researched if exchange rates affect MNC's decisions to invest in a foreign country. Using US inbound FDI data, they found that not only the actual exchange rates affect the decisions of MNC whether to invest in a foreign country, but also the future exchange rates affect these decisions (Froot & Stein, 1991).

Campa (1993) also finds evidence of these effects. Whenever the exchange rates become more volatile and less predictive, MNC's tend to delay these decisions, which depresses the inward FDI (Campa, 1993).

Blonigen (2005) discusses both endogenous as exogenous variables. This paper looks on the demand side of the FDI. So, what affects the multinational companies' decision to make an investment into a foreign country? Some studies had been primarily researching the effect of exchange rates on FDI. Logically, whenever the currency of the home country appreciates, it

would be cheaper to acquire a foreign company (Blonigen B. A., 2005). He also discusses a hypothesized link between FDI and trade protection. Due to trade protection firms have a higher incentive to substitute their affiliate production for exports to avoid these trade protection measurements.

Political factors

Next to the economic factors, there are also political factors, which are of importance in determining FDI. Tim Büthe and Helen Milner (2008) plea for an approach on researching what factors are influencing the FDI in a country, different than economic factors.

Multiple papers researched the political determinants, and found, among other things, that the predictability of a country's economic policy has a positive effect on inward FDI. They also say that political stability is an important determinant is attracting FDI. Many times, political actions and economic policy go hand in hand, for example when a new government is formed after elections, there is a fair chance that they change their economic policy. Therefore, Schneider and Frey (1985) found that political instability results in more risks for international investors and thus discourage them in investing in the host country.

Asiedu (2006) found that good infrastructure, an efficient legal system and a good investment framework contribute to the attraction of FDI. On the contrary, corruption and political instability have the opposite effect. (Asiedu, 2006) And many more papers researched these political determinants and found that, political instability and increased risk for investors in the future harm the inward FDI (Busse & Hefeker, 2007), (Li, 2008).

Feng (2001) uses numerous factors to incorporate political stability into his model, he uses freedom factors in terms of political rights and civil liberties to observe what effect they have on private investment. On top of that, this model includes factors of revolutions, coup d'état, riots and strikes. It gives a comprehensive view of political freedom. These factors can also give a view on political stability, which is an important factor in attracting FDI. He found that political freedom, political stability and political certainty contribute to the inward FDI (Feng, 2001).

Multiple previous researches show that democracies attract more foreign investments. However, you would say that democracies will change policy every four year, making it politics-induced unpredictable and thus will attract less FDI (O'Donnel, 1973). So, these are domestic factors which influence the FDI in a country, but international factors, like

international institutions and promises from on country to another, could influence the FDI in a positive way.

Daude and Stein (2007) researched what effect certain institutions have on FDI and found that *"unpredictable policies, excessive regulatory burden, and lack of commitment on the part of the government seem to play a major role in deterring FDI"* (Daude & Stein, 2007).

International factors, why international commitments can increase FDI?

Büthe and Milner (2008) looked at the international political factors rather than the domestic one. They researched what effect Preferential Trade Agreements (PTA) and GATT/WTO membership have on FDI. They explained why international institutions should contribute to the inward FDI of country (Büthe & Milner, 2008).

And that is, because FDI is a long-term commitment of a MNC and that these investments are not perfectly mobile, the host country's government wants to get a bigger piece of the pie, by subtle short-term measures, like regulation, taxation, tariffs, etcetera. With these measures, the government basically forces the MNC to make decisions which are more in favour of the host country, like buying from domestic suppliers rather than international ones. These measures deter FDI.

Therefore, on the long-run, governments should make FDI lucrative by setting favourable policies for the MNC's, however governments are more inclined to do the exact opposite when the short-run benefits exceed the long-run costs. So, in bilateral or multi-lateral agreements free trade agreements, host countries and its counterpart will be, for example, lowering import tariffs, to make it more favourable for countries to trade with each other and making it easier for MNC's to invest in such country. So, the long-run benefits go up, and the short-run costs, by breaking such agreements, will be much higher as well, making the host country feel less inclined to impose trade barriers. These agreements will be implemented for longer periods of time than electoral terms, making it a more stable environment for investors, thus making it more predictable, which in turn will attract FDI, which was discussed previously.

The information effect is the reason for this phenomenon. Explained in the paper is that through international agreements, governments must comply with the agreed terms. First, whenever a domestic or an international actor notices that a government does not uphold its

‘committed’ policies, it is in their self-interest to reveal these violations. So, the actors are monitoring as well. Therefore, a country can be punished whenever it is ignoring the treaties they signed, making it more predictable that they continue with the trade policy. Second, with these agreements come international mechanisms, which support the investors whenever an agreement is being violated, e.g. EU commission’s Directorate General for Trade, which monitors the agreements. Because of this, foreign governments can pressure the host country to commit to its agreement, if not, the WTO allows to put economic sanctions into place. Third, whenever a country deflects, its reputation will be tarnished and will do harm if the country wants to make agreements in the future. It will not be a trustworthy partner (Büthe & Milner, 2008).

These arguments show that it is important for a country to engage in free trade agreements when it wants to attract FDI.

The data being used are from 129 countries from 1970-2000. They restricted their data in two ways; only developing countries and countries with more than a million inhabitants.

Büthe and Milner found that there is a positive in the number of preferential trade agreements and membership to GATT/WTO. They also found that there is a significant of political instability and GDP growth on FDI.

Regarding these factors, this paper will research an empirical view of the effects of free trade agreements on FDI, it is like the Büthe and Milner paper, regarding the methodology, but the data is more recent.

Considering these variables both economic as political, this paper will include most of these variables to give a representative model, with the least omitted variable bias. This paper will include for the economic variables, GDP per capita, trade deficit, and exchange rates. But I will also include political variables into the model, freedom factors based on economic freedom score. The main research question is what effect PTA’s and membership of GATT/WTO have on inward FDI. Büthe and Milner’s research might be outdated and thus, because of the recent developments regarding free trade agreements, discussed in the introduction, I would like to research the more recent effect of free trade agreements on FDI.

Data

Foreign Direct Investment inflows per year

The data consists of 118 countries ranging from 1990 until 2015. Discussed before, this dataset does not include any developed countries, because Blonigen and Wand argue that pooling developed countries and developing countries together would result in capturing countries in one picture whom systematically differ in the factors causing FDI. They found that data of developing countries follow very different processes than in developed countries. Only countries with more than one million inhabitants are included, because these countries differ in their structural relationships than bigger countries, which would bias the analysis

Because this paper researches the benefits of Free Trade Agreements in terms of FDI growth, by relating it to the GDP, I will use the formula of the dependent variable FDI_t/GDP_t.

This data is available on the United Nations Conference on Trade and Development. I think this data is reliable, because the United Nations is a respectable organisation, which was put in place to gradually overlook and advice the development of nations (United Nations Conference of Trade and Development, 2017).

GDP per capita

The GDP per capita was retrieved from the World Bank site. It shows the GDP per Capita of every country from 1960 until 2015, but will be adjusted to match with the FDI inward flows. The same goes for this data, it will be of 118 countries from 1990 until 2015. However, some of the data is missing, not reported, or reported wrongly, so these will, obviously, be excluded from the regression model (The World Bank, 2017).

Trade deficit

The Trade deficit is in terms of GDP, to adjust for large and small countries. If I would have taken the absolute numbers, it would give us skewed image of what the effect of trade deficit would have on FDI. The data is also retrieved from The World Bank.

Exchange rates

For the exchange rates, the data being used is from the IMF. However, this data only goes from 1994 until 2015 and does not account for every country in the model, restricting the data for four years

Economic freedom score

The economic freedom score is a score based on several factors, namely; property right, government integrity, judicial effectiveness, tax burden, government spending, fiscal health, business freedom, labour health, monetary freedom, trade freedom, investment freedom and financial freedom. These factors are summarized in an overall score, which has a range from 1 – 100 with the lowest score of 1 for North Korea, and highest score of 90.5 for Hong Kong. This is a dataset which is reliable and has many observations, the data starts in 1995 and ends in 2015. The down turn on this dataset that relatively large amounts of information is missing, especially in the starting years (Heritage, 2017).

Cumulative PTA's

For the cumulative PTA's I looked at the World Trade Organisation's region trade agreements database, which shows the treaties that are in force between nations as when they were signed by those nations. These treaties are not only bilateral, some will be multilateral, including multiple nations. However, I will count multilateral agreements as one PTA. The cumulative part will show whether the treaty has helped in the attraction of new FDI.

Trading blocs are considered as one country as well, because these economic blocs represent every country inside that bloc, whenever it considers a free trade agreement with another country/bloc. (e.g., when Chile signs a free trade agreement with the EU, it will count for 1 extra Cum. PTA and not for 28 PTA's, the members of the EU)

So, I will use the EU (and other trade blocs) as independent factors influencing the FDI in developing countries, but will not use those countries in the EU which are still considered developing countries as dependent variables. This is, because the mechanisms within the EU causing FDI are different than the mechanisms of non-EU countries. Because of these

mechanisms, I think investments in country in the EU by another EU member should not be regarded as FDI, but more as a domestic investment (World Trade Organization, 2017). On top of that, it is difficult to search for, when a country has signed the EU treaty, when it went in force and which countries participated in those treaties, because not every current EU member joined the EU at the same time.

So, the developing countries in the other trade blocs (ASEAN, Mercosur) will be used as dependant variables, because these trade blocks do not have an as integrated market as the EU does. But regarding the cumulative PTA's, a trade bloc with multiple countries will be considered as 1 PTA.

Member of GATT/WTO

The data being used for the GATT/WTO variable are from the site of the WTO, which has the exact date of when a country joined the GATT/WTO. The scores will have either a 0 or a 1. It will have the score of 0 when a country has not joined the GATT/WTO, and a 1 when it has. When a country has joined the GATT/WTO it will get a score of 1 from that year until 2015, the end of the researched period (World Trade Organization, 2017).

Methodology

The combination between cross section and time series is called panel data. Because it combines both cross section and temporal effect it improves the quality of the data and it tackles issues with missing or omitted variables.

Büthe and Milner (2008) also researched panel data and found that, it is inappropriate to use an ordinary least square and a random effects estimation. However, normally when using panel data three methods can be used; fixed effects model, random effects and Between effects. The Hausman Test tests for correlation between independent variables and the error term. This correlation will cause an OLS estimation to fail. The Hausman test rejects the null hypothesis (a correlation between independent variables and the error term was found) and therefore the fixed effects model should be used. The fixed effects model assumes there is an individual national effect that correlates with the independent variables. Therefore, national dummy variables are used to test for the differences amongst countries. These are the country-specific effects. The same goes for time-invariant effects, which creates yearly dummy variables to test for differences throughout the years (Torres-Reyna, 2007).

Looking at these variables individually, I noticed that GDP per Capita has numerous outliers, which are mostly Arab countries, which have extremely high values. These values are higher than most, if not all, OECD countries, and these countries are highly dependent on exporting base materials, like crude oil. Industries in those countries are capital-intensive, and thus only few are benefiting from it. The excluded countries are; Bahrain, Kuwait, Qatar, and United Arab Emirates. Oman and Saudi Arabia were not excluded, because of their relatively low GDP per capita and the relative diversity of their exports. (The Observatory of Economic Complexity, 2017). In this paper GDP, per capita tries to capture the market strength, but these "outliers" are the strength of the few, and are not capturing the whole market, so I believe that the extreme values give a wrong representation.

After excluding Bahrain, Kuwait, Qatar, and United Arab Emirates, a model was regressed, and the output included 1819 observations including, 101 countries and 21 annual periods. After the exclusion of these the R-square went up, meaning the model fits the data better.

Furthermore, to check which model is the best fitted one, the R-squared should be as high as possible as for the Schwarz-criterion the lowest possible outcome would be preferred.

After all these considerations, the equation can be formulated; $FDI_{it} = \beta_{1\,it} PTA's_{it} + \beta_{2\,it} GATT/WTO_{it} + \beta_{3\,it} GDP_{it} + \beta_{4\,it} Trade\ Deficit_{it} + \beta_{5\,it} Exchange\ rates_{it} + \beta_{6\,it} Economic\ Freedom_{it} + \alpha_{it} + \varepsilon_{it}$

in which;

- i stands for country, and t stands for year
- FDI is the dependent variable
- PTA's it is the cumulative trade agreements independent variable
- GATT/WTO is membership to GATT or WTO
- GDP is the GDP per capita
- Trade deficit is the trade deficit in percentages
- Exchange rates are the exchange rates compared to the dollar
- Economic Free is the economic freedom score
- αi is the individual effect to the dependent variable, for country specific variables and time variables.
- ε stands for the error term

Results

Table 1

Model 1

FDI/GDP (1819 observations)

Periods included: 21
Cross-sections included: 101

Variable	**Coefficient**	**Standard errors**
Constant	-0.011388	0.011549
Cumulative PTA's	-0.000417	0.000490
Member of GATT/WTO	0.012306***	0.004226
GDP per Capita	-0.00000109**	5.43E-07
Trade deficit	-0.002467***	0.000122
Exchange Rates	-0.000560	0.000551
Economic Freedom	0.000658***	0.000197
R-squared	0.608657	
Schwarz criterion	-3.561580	

*, **, *** are for significance level of, respectively, 10%, 5%, and 1%. Cluster-robust standard errors are used in the model to allow for heteroscedasticity and serial correlation.

The matter at hand in this research paper, is that Preferential Trade Agreements was supposed to be significant, because Büthe and Milner (2008), found such a significant effect. Their findings, however, were from a different period, starting in 1970 and ending in 2000. In their paper, they did robustness checks in excluding some observations, East Asian Economies and post-communist eastern European countries. They found that these results where robust to the changes. In this paper, I included the Russian federation and some ex-communist countries as East Asian economies. Maybe back then their exclusion, did not change the results, but nowadays it might have a significant effect. This paper spans a time of 21 years against 31 years of Büthe and Milner. Maybe my time-span is too short to observe and measure a significant effect, because the effects in question might only be observed over the longer term. On the other hand, Büthe and Milner had 122 countries included in their regression model, whereas this model had only 101 countries included. This is not the cause of countries disappearing over the years, on the contrary, in the last 40 years the number of countries has risen. Maybe this gap in countries could have caused a significant effect. But the difference in era could most likely be the cause of the difference in results. The difference in eras could be large enough to explain the difference. One of the larger difference could be the importance of internet nowadays in contrast to 40 years ago or it might also be the lower transportation costs.

The results are significant for whether the country is member of GATT or WTO. When a country is member of GATT/WTO the share of the FDI on GDP will increase with 1.23%.

GDP per capita is also significant, although it is significant at 5% level. For every $1000 and $10.000 rise, the FDI in terms of GDP goes down, by 0.109% and 1.09% respectively. The way the dependent variable is formulated in this model is a function of GDP, and the same goes GDP per capita. A rise in GDP relative to FDI, would lower the FDI rate in GDP, but would rise the GDP per capita, assuming the population would stay the same. Looking beyond the model, this is an unexpected result, because a powerful market has more demand and would be more lucrative. On the other hand, FDI based on export would be more lucrative in countries with lower GDP per capita, regarding manufacturing costs and labouring costs.

Trade deficit on the other hand is very significant at a 1% level. The influence of trade deficit in this model is small, for every 1 percent of trade deficit would increase the FDI by 0.2 percent and the same goes the other way. This is in line in what was found in other researches. A country with a trade deficit would have an incentive to increase the FDI, with more FDI a country would be exporting more and thus would decrease the trade deficit.

The exchange rates, however, are not significant and do not have any influence over the FDI relative to GDP. An increase in exchange rate would mean that the local currency depreciated, which would make it more attractive for enterprises to settle in that specific country. Apparently, this is not the case. On the other hand, in this paper, I only put the exchange rate of the local currency in terms of US dollars. The United States are one of the most powerful economies in the world, but does not account for every currency in the world. Chinese and European investments, which were not included, also account for a large part of international investments. This currency depreciation (appreciation) could be the cause of local currency depreciation (appreciation) or USD appreciation (depreciation). This would not account for the euro or the yuan and others, making an incomplete representation of exchange rates on FDI, which would explain the insignificance of exchange rates on FDI.

And as last, the economic freedom score is significant at a 1% level, and for each marginal percentage point of economic freedom would account for a 0.067% rise in FDI relative to GDP. It is a small effect, which could be explained that, countries with more economic freedom would generally have higher GDP. A regression model with Log(GDP) as dependent variable with the independent variables used in the model above, gives a significant result for economic freedom on the log of GDP. This is shown in the appendix (8 & 9).

Robustness checks

Alternatively, I did some test whether to include certain variables with the redundant fixed effects test. It was discussed before that the regression being used should be with fixed effects, and with the outcome of this test confirmed it. (Appendix 7)

It is also possible to do another test whether to use fixed effects or random effects. The Hausman test can also be used and whenever the Chi-square is below 0.05 probability, it is suggested to use fixed effects. The results are both for cross section and period random significant, thus the null hypothesis to use random effects was rejected. (Appendix 4)

I use coefficient covariance method to control for heteroscedasticity and contemporaneous correlation. This method only affects the standard error and not the coefficients. Three methods are being used (faculteit economie en bedrijfswetenschappen Leuven, 2017);

- White cross section; this option makes the standard errors robust to cross-section heteroscedasticity and contemporaneous correlation among cross sections.
- White period; this option makes standard errors robust to serial correlation within cross-section and changing variances over time
- White diagonal; this option makes standard errors robust to all forms of heteroscedasticity, but not robust for any type of correlation over time of across cross-section

Table 2

FDI/GDP **standard errors**

Variables	**Model 2/ White cross section**	**Model 3/ White period**	**Model 4/ White diagonal**
Constant	0.010383	0.014210	0.012336
Cumulative PTA's	0.000606	0.000699	0.000378
Member of GATT/WTO	0.003294***	0.006208**	0.003482***
GDP per Capita	7.49E-07	8.68E-07	5.06E-07**
Trade deficit	0.000402***	0.000673***	0.000363***
Exchange Rates	0.000655	0.000322*	0.000628
Economic Freedom	0.000164***	0.000269**	0.000220***

*, **, *** are for significance level of, respectively, 10%, 5%, and 1%

This proves that even with different estimations the results, regarding membership of GATT/WTO and Cumulative PTA, are still significant, making it robust.

Conclusion

The primary research question in this paper was, what the effect of preferential trade agreements and GATT/WTO membership would be on FDI investments in a country. The reason for this was, that international commitments would lead to more open and stable economic policies, which in turn would result in a higher FDI part in GDP. This was solely done for developing countries and countries with less than one million inhabitants. In this model, I also used control variables, namely GDP per capita, trade deficit, exchange rates and economic freedom score to give a more representative output, and to avoid omitted variable bias. It would also give a more comprehensive view on FDI. The data came from 101 countries over 21 years with 7 variables (dependant included). This resulted in a cross-sectional time series, making it a panel data. This panel data was regressed into a least square model with country fixed effects.

The results showed that preferential trade agreements have an insignificant effect on FDI in terms of GDP, but there was a significant effect found for Membership to GATT/WTO. The insignificant effect was not in sync with previous research on the effect of free trade agreement on FDI. This might be, due to a more recent data in this research. Contradictory relations within the effect of free trade agreements on FDI might have resulted in an insignificant effect. However, this cannot explain the significant effect of a membership to WTO on FDI. Variation in types of free trade agreements could be the reason, because different countries make different agreements (for example, agreements by industry). Whereas membership to WTO makes the same agreements to every member. Further research should consider the diversity of these agreements and separate the effects of the different agreements.

For policy recommendations, I would suggest that every country should become a member of the WTO, if you want to raise FDI. Regarding the results in this paper, I would say that engaging in free trade agreements would not necessarily lead to an increase in your country's FDI and might even have some downsides. One of these downsides, when engaging in free trade agreements, is the reduction of autonomy. Whenever a country is engaged in such agreements it is bound to uphold the terms of the agreement, losing a bit of its autonomy. But regaining this autonomy loss by suddenly withdrawing from such agreement could harm

one's economy, because it would negatively affect the companies which benefited from this agreement and harms the diplomatic status of your country, as an untrustworthy country.

And with the most recent trends in nationalism and putting your country at first place, looking at Trumps campaign with the "America first" slogan, a reduction in autonomy would not be received popular amongst the electorate and thus engaging in free trade agreements would more often be received as a threat than as an opportunity.

Limitations

One limitation of the model is that it does not include many variables and the lack of significance of some variables does not contribute to the explanatory value of this paper. And for the independent variables included, some could have a correlation with the error term. There is always an issue with omitted variables which influence both the independent variables and dependent variable. These problems with endogeneity could result in incorrect measurement of the variables.

The data of some variables were incomplete. Some years were not included, some data of countries was missing for a few years or for all years. However, 1819 observations are still quite a lot. The most obvious limitation is lack of time, because I was limited to a 2 – 3-month time span. More time would mean a more complete, more sophisticated model. So further research could consider including more variables in this model. Another limitation is resources, some data could not be retrieved, because accession was declined, because I was not paying for certain databases, like trading economics, for exchange rates and others.

Bibliography

Asiedu, E. (2006). Foreign Direct Investment in Africa: The Role of Natural Resources, Market Size, Government Policy, Institutions and Political Instability. *The World Economy*, 63-77.

Blonigen, B. A. (2005). A Review of the Empirical Literature on FDI determinants. *Atlantic Economic Journal 33 (4)*, 383-403.

Blonigen, B. A., & Wang, M. (2005). Inappropriate pooling of Wealthy and poor countries in empirical FDI studeis. In T. H. Moran, E. M. Graham, & M. Blomstörm, *Does Foreign Direct Investment Promote Development?* (pp. 221-244). Washington D.C.: Institute for International Economics.

Borensztein, E., De Gregorio, J., & Lee, J.-W. (1998). How does foreign direct investment affect economic growth? *Journal of International Economics*, 115-135.

Brunetti, A., Kisunko, G., & Weder, B. (1997). Institutional Obstacles to doing Business: region-by-region results from a Worldwide survey in the private sector. *World Bank Policy Research Paper 1759*.

Busse, M., & Hefeker, C. (2007). Politcal risk, institutions and foreign direct investment. *European journal of political economy*, 397-415.

Buthe, T., & Milner, H. V. (2008). The politics of Foreign Direct Investment into Developing Countries: increasing FDI through International trade agreements. *American Journal of Politics Science*, 741-762.

Büthe, T., & Milner, H. V. (2008). The Politics of Foreign Direct Investment into Developing Countries: Increasing FDI through international trade agreements. *American Journal of Political Science*, 741-762.

Campa, J. M. (1993). Entry by Foreign Firms in the U.S. Under Exchange Rate Uncertainty. *Review of Economics and Statistics 75 (4)*, 614-622.

Daude, C., & Stein, E. (2007). The quality of institutions and foreign direct investment. *Economics & Politics*, 317-344.

faculteit economie en bedrijfswetenschappen Leuven. (2017, 16 28). *Panel data*. Retrieved from KU leuve: http://feb.kuleuven.be/public/ndbae06/courses/advanced_econometrics/panelshort.pdf

Feng, Y. (2001). Political Freedom, Political Instability, and Policy Uncertainty. *international studies quarterly 45 (2)*, 271-294.

Foster, A., & Smith, R. (2017, 1 23). *What is TPP? Why is Donald Trump pulling out of the Trans-Pacific Partnership?* Retrieved from express UK: http://www.express.co.uk/news/politics/757837/TPP-what-is-Trans-Pacific-Partnership-trade-deal-Donald-Trump-why-pull-out-US-America

Froot, K. A., & Stein, J. C. (1991). Exchang rates and foreign direct investment, an imperfect capital market approach. *Quarterly Journal of Economics 106 (4)*, 1191-1217.

Fry, E. H. (1983). *The politics of international investment.* McGraw-Holl Book Company.

Heritage. (2017, 06 28). *Index of Economic Freedom.* Retrieved from Heritage: http://www.heritage.org/index/explore

Jun, K. W., & Singh, H. (1996). The Determinants of Foreign Direct Invetsent in Development Countries. *Transnational Corporations 5 (2)*, 67-105.

Li, Q. (2008). Foreign direct investment and interstate military conflict. *Journal of International Affairs*, 53-66.

O'Donnel, G. A. (1973). *Modernization and Bureaucratic Authoritarianism.* Berkeley: 2nd ed Berkeley, CA: institute of International studies.

Reed, R., Lira, C., Lee, B.-K., & Lee, J. (2016). Free Trade Agreements and Foreign Direct Investment: The Role of Endogeneity and Dynamics. *Southern Economic Journal, 83*(1), 176-201.

Schneider, F., & Frey, B. S. (1985). Economic and Poliitical Determinants of Foreign Direct Investment. *World Development 13 (2)*, 161-75.

The Observatory of Economic Complexity. (2017, 07 15). *About the Observatory*. Retrieved from The Observatory of Economic Complexity: http://atlas.media.mit.edu/en/resources/about/

The World Bank. (2017, 06 26). *GDP per Capita (current US$).* Retrieved from The World Bank: http://data.worldbank.org/indicator/BN.CAB.XOKA.GD.ZS

Torres-Reyna, O. (2007, December 1). *Panal Data Analysis Fixed and Random Effects using Stata.* Retrieved from Princeton.edu: https://www.princeton.edu/~otorres/Panel101.pdf

Tsai, P.-L. (1994). Deterintants of Foreign Direct Investment and Its Impact on Economic Growth. *Journal of Economic Development, 19*(1), 137-163.

United Nations Conference of Trade and Development. (2017, 06 27). *World Investment Report 2017: Annex Tables.* Retrieved from UNCTAD: http://unctad.org/en/Pages/DIAE/World%20Investment%20Report/Annex-Tables.aspx

World Bank Group. (2014, 10 29). *Doing Business 2015 Going Beyond Efficiency Economy Profile Lebanon.* Brussels: World Bank Publications. Retrieved 10 20, 2015, from http://www.doingbusiness.org/reports/global-reports/doing-business-2015

World Trade Organization. (2017, 06 28). *RTA .* Retrieved from World Trade Organization: http://rtais.wto.org/UI/PublicSearchByMemberResult.aspx?MemberCode=566&lang=1&redirect=1

World Trade Organization. (2017, 06 30). *The WTO - Gatt Members.* Retrieved from World Trade Organization: https://www.wto.org/english/thewto_e/gattmem_e.htm

Appendix

1 Logged GDP per capita

Dependent Variable: FDI_GDP
Method: Panel Least Squares
Date: 07/20/17 Time: 14:33
Sample (adjusted): 1995 2015
Periods included: 21
Cross-sections included: 104
Total panel (unbalanced) observations: 1864

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.067091	0.027381	2.450290	0.0144
TRADE_AGREEMENTS	-0.000591	0.000493	-1.198825	0.2308
MEMBER_OF_GATT_WTO	0.014394	0.004396	3.274662	0.0011
LOG(GDP_PER_CAPITA)	-0.012291	0.003867	-3.178287	0.0015
TRADE_DEFICIT	-0.002326	0.000122	-19.07001	0.0000
EXCHANGE_RATES___1	-0.000912	0.000573	-1.591627	0.1117
ECONOMIC_FREEDOM	0.000843	0.000209	4.026048	0.0001

Effects Specification

Cross-section fixed (dummy variables)
Period fixed (dummy variables)

R-squared	0.591728	Mean dependent var	0.039664
Adjusted R-squared	0.561355	S.D. dependent var	0.050457
S.E. of regression	0.033418	Akaike info criterion	-3.892280
Sum squared resid	1.936414	Schwarz criterion	-3.506571
Log likelihood	3757.605	Hannan-Quinn criter.	-3.750151
F-statistic	19.48193	Durbin-Watson stat	1.136251
Prob(F-statistic)	0.000000		

2 Excluded GDP per capita

Dependent Variable: FDI_GDP
Method: Panel Least Squares
Date: 07/20/17 Time: 16:56
Sample (adjusted): 1995 2015
Periods included: 21
Cross-sections included: 101
Total panel (unbalanced) observations: 1819

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.011388	0.011549	-0.986050	0.3242
TRADE_AGREEMENTS	-0.000417	0.000490	-0.852250	0.3942
MEMBER_OF_GATT_WTO	0.012306	0.004226	2.911792	0.0036
GDP_PER_CAPITA	-1.09E-06	5.43E-07	-2.002764	0.0454
TRADE_DEFICIT	-0.002467	0.000122	-20.21314	0.0000

EXCHANGE_RATES___1	-0.000560	0.000551	-1.016244	0.3097
ECONOMIC_FREEDOM	0.000668	0.000197	3.400534	0.0007

Effects Specification
Cross-section fixed (dummy variables) Period fixed (dummy variables)

R-squared	0.608657	Mean dependent var	0.039842
Adjusted R-squared	0.579514	S.D. dependent var	0.050167
S.E. of regression	0.032531	Akaike info criterion	-3.946004
Sum squared resid	1.790553	Schwarz criterion	-3.561580
Log likelihood	3715.890	Hannan-Quinn criter.	-3.804173
F-statistic	20.88549	Durbin-Watson stat	1.096473
Prob(F-statistic)	0.000000		

4 Houseman robustness check

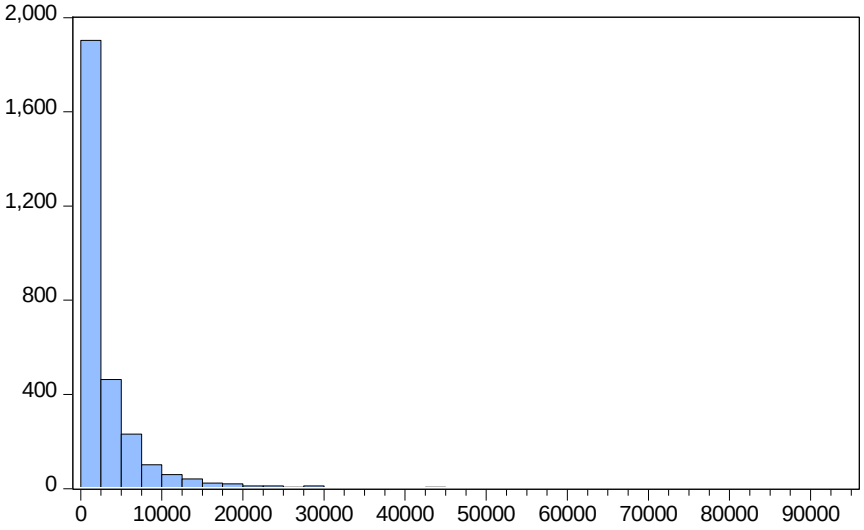
It is also possible to test whether to use fixed effects or random effects. The Hausman test was used and whenever the Chi-square is below 0.05 probability, it is suggested to use fixed effects[1].

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	69.238772	6	0.0000

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	78.036600	6	0.0000

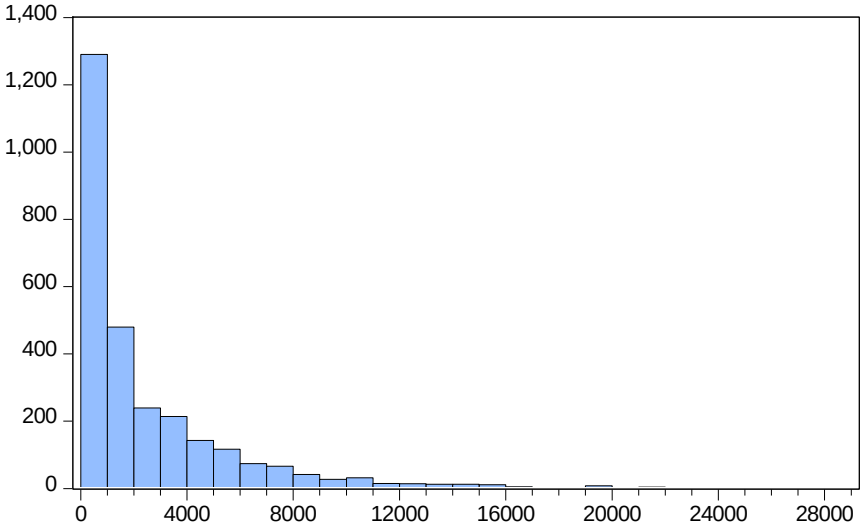
5 skewedness graphs

[1] In appendix



Series: GDP_PER_CAPITA	
Sample 1990 2015	
Observations 2924	
Mean	3611.479
Median	1258.530
Maximum	94944.09
Minimum	64.81015
Std. Dev.	7299.502
Skewness	6.060118
Kurtosis	54.88261
Jarque-Bera	345848.9
Probability	0.000000

6 Skewness graphs after excluding Arab oil countries



Series: GDP_PER_CAPITA	
Sample 1990 2015	
Observations 2823	
Mean	2620.584
Median	1187.493
Maximum	28937.30
Minimum	64.81015
Std. Dev.	3533.003
Skewness	2.873896
Kurtosis	14.23532
Jarque-Bera	18734.07
Probability	0.000000

7 Redundant Fixed Effects Test Likelihood ratio

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section and period fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	15.090172	(100,1692)	0.0000
Cross-section Chi-square	1159.716880	100	0.0000
Period F	6.783575	(20,1692)	0.0000
Period Chi-square	140.302183	20	0.0000
Cross-Section/Period F	14.092299	(120,1692)	0.0000
Cross-Section/Period Chi-square	1260.337919	120	0.0000

Cross-section fixed effects test equation:
Dependent Variable: FDI_GDP
Method: Panel Least Squares
Date: 07/20/17 Time: 19:55
Sample (adjusted): 1995 2015
Periods included: 21
Cross-sections included: 101
Total panel (unbalanced) observations: 1819

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.020487	0.007228	2.834238	0.0046
TRADE_AGREEMENTS	-0.000993	0.000359	-2.767761	0.0057
MEMBER_OF_GATT_WTO	-0.013703	0.002943	-4.656423	0.0000
GDP_PER_CAPITA	1.49E-06	3.47E-07	4.282843	0.0000
TRADE_DEFICIT	-0.002686	0.000124	-21.66793	0.0000
EXCHANGE_RATES___1	0.003069	0.000680	4.511366	0.0000
ECONOMIC_FREEDOM	0.000356	0.000144	2.482035	0.0132

Effects Specification

Period fixed (dummy variables)

R-squared	0.259636	Mean dependent var	0.039842
Adjusted R-squared	0.248894	S.D. dependent var	0.050167
S.E. of regression	0.043478	Akaike info criterion	-3.418397
Sum squared resid	3.387465	Schwarz criterion	-3.336669
Log likelihood	3136.032	Hannan-Quinn criter.	-3.388244
F-statistic	24.17040	Durbin-Watson stat	0.579649
Prob(F-statistic)	0.000000		

Period fixed effects test equation:
Dependent Variable: FDI_GDP
Method: Panel Least Squares
Date: 07/20/17 Time: 19:55
Sample (adjusted): 1995 2015
Periods included: 21
Cross-sections included: 101
Total panel (unbalanced) observations: 1819

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.026457	0.011404	-2.319942	0.0205
TRADE_AGREEMENTS	0.000350	0.000458	0.765170	0.4443
MEMBER_OF_GATT_WTO	0.017036	0.004269	3.990199	0.0001
GDP_PER_CAPITA	-7.65E-08	4.78E-07	-0.160085	0.8728
TRADE_DEFICIT	-0.002309	0.000120	-19.18463	0.0000
EXCHANGE_RATES___1	-0.001168	0.000563	-2.074294	0.0382
ECONOMIC_FREEDOM	0.000776	0.000201	3.857489	0.0001

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.577277	Mean dependent var	0.039842
Adjusted R-squared	0.551104	S.D. dependent var	0.050167
S.E. of regression	0.033612	Akaike info criterion	-3.890862
Sum squared resid	1.934127	Schwarz criterion	-3.566977
Log likelihood	3645.739	Hannan-Quinn criter.	-3.771367
F-statistic	22.05601	Durbin-Watson stat	1.038139

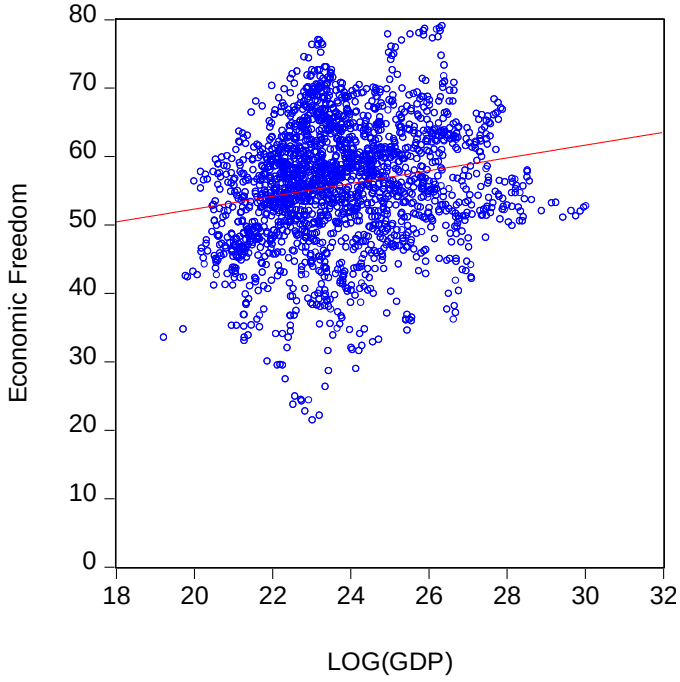
Prob(F-statistic)	0.000000

Cross-section and period fixed effects test equation:
Dependent Variable: FDI_GDP
Method: Panel Least Squares
Date: 07/20/17 Time: 19:55
Sample (adjusted): 1995 2015
Periods included: 21
Cross-sections included: 101
Total panel (unbalanced) observations: 1819

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.021006	0.007374	2.848587	0.0044
TRADE_AGREEMENTS	-0.000524	0.000349	-1.499309	0.1340
MEMBER_OF_GATT_WTO	-0.010747	0.002960	-3.630654	0.0003
GDP_PER_CAPITA	1.90E-06	3.32E-07	5.710167	0.0000
TRADE_DEFICIT	-0.002653	0.000121	-22.00400	0.0000
EXCHANGE_RATES___1	0.002267	0.000688	3.294649	0.0010
ECONOMIC_FREEDOM	0.000259	0.000145	1.787629	0.0740

R-squared	0.217527	Mean dependent var	0.039842
Adjusted R-squared	0.214936	S.D. dependent var	0.050167
S.E. of regression	0.044450	Akaike info criterion	-3.385070
Sum squared resid	3.580127	Schwarz criterion	-3.363881
Log likelihood	3085.721	Hannan-Quinn criter.	-3.377253
F-statistic	83.95601	Durbin-Watson stat	0.564007
Prob(F-statistic)	0.000000		

8. Economic freedom on GDP



9 Economic Freedom on GDP regression model

Dependent Variable: LOG(GDP)
Method: Panel Least Squares
Date: 07/20/17 Time: 19:03
Sample (adjusted): 1995 2015
Periods included: 21
Cross-sections included: 101
Total panel (unbalanced) observations: 1819

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	22.99928	0.073323	313.6715	0.0000
TRADE_AGREEMENTS	-0.002510	0.003068	-0.818369	0.4133
MEMBER_OF_GATT_WTO	0.177345	0.026669	6.649881	0.0000
TRADE_DEFICIT	0.003302	0.000769	4.292016	0.0000
EXCHANGE_RATES___1	-0.028910	0.003508	-8.241961	0.0000
ECONOMIC_FREEDOM	0.013411	0.001254	10.69623	0.0000

Effects Specification

Cross-section fixed (dummy variables)
Period fixed (dummy variables)

R-squared	0.987722	Mean dependent var	23.88646
Adjusted R-squared	0.986815	S.D. dependent var	1.807890
S.E. of regression	0.207589	Akaike info criterion	-0.239758
Sum squared resid	72.95696	Schwarz criterion	0.141639
Log likelihood	344.0597	Hannan-Quinn criter.	-0.099044
F-statistic	1089.565	Durbin-Watson stat	0.336470
Prob(F-statistic)	0.000000		

10 coef covariance

Dependent Variable: FDI_GDP
Method: Panel Least Squares
Date: 07/20/17 Time: 20:37
Sample (adjusted): 1995 2015
Periods included: 21
Cross-sections included: 101
Total panel (unbalanced) observations: 1819
White cross-section standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.011388	0.010383	-1.096831	0.2729
TRADE_AGREEMENTS	-0.000417	0.000606	-0.688904	0.4910
MEMBER_OF_GATT_WTO	0.012306	0.003294	3.736095	0.0002
GDP_PER_CAPITA	-1.09E-06	7.49E-07	-1.451789	0.1467
TRADE_DEFICIT	-0.002467	0.000402	-6.134227	0.0000
EXCHANGE_RATES___1	-0.000560	0.000655	-0.854677	0.3929
ECONOMIC_FREEDOM	0.000668	0.000164	4.086394	0.0000

Effects Specification

Dependent Variable: FDI_GDP
Method: Panel Least Squares
Date: 07/20/17 Time: 20:38
Sample (adjusted): 1995 2015

Periods included: 21
Cross-sections included: 101
Total panel (unbalanced) observations: 1819
White period standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.011388	0.014210	-0.801429	0.4230
TRADE_AGREEMENTS	-0.000417	0.000699	-0.596788	0.5507
MEMBER_OF_GATT_WTO	0.012306	0.006208	1.982241	0.0476
GDP_PER_CAPITA	-1.09E-06	8.68E-07	-1.253006	0.2104
TRADE_DEFICIT	-0.002467	0.000673	-3.666774	0.0003
EXCHANGE_RATES___1	-0.000560	0.000322	-1.739913	0.0821
ECONOMIC_FREEDOM	0.000668	0.000269	2.483393	0.0131

Effects Specification

Dependent Variable: FDI_GDP
Method: Panel Least Squares
Date: 07/20/17 Time: 20:38
Sample (adjusted): 1995 2015
Periods included: 21
Cross-sections included: 101
Total panel (unbalanced) observations: 1819
White diagonal standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.011388	0.012336	-0.923148	0.3561
TRADE_AGREEMENTS	-0.000417	0.000378	-1.104491	0.2695
MEMBER_OF_GATT_WTO	0.012306	0.003482	3.534497	0.0004
GDP_PER_CAPITA	-1.09E-06	5.06E-07	-2.150411	0.0317
TRADE_DEFICIT	-0.002467	0.000363	-6.795725	0.0000
EXCHANGE_RATES___1	-0.000560	0.000628	-0.890612	0.3733
ECONOMIC_FREEDOM	0.000668	0.000220	3.036626	0.0024

Effects Specification

Cross-section fixed (dummy variables)
Period fixed (dummy variables)