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ESSAYS ON INTERNATIONAL INVESTMENT TREATIES, INVESTOR-STATE DISPUTES AND DOUBLE TAX TREATIES

A DISSERTATION APPROVED FOR THE
DEPARTMENT OF ECONOMICS

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DEDICATION

to

Wisdom Yayi

and

Hilaire Yayi & Therese Chabi

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Abstract

Chapter 1 explores the effects of international investment treaties on institutional quality. Capital importing countries use bilateral investment treaties (BITs) as a means to attract foreign investors who see these investment agreements as an effective tool to employ in case of an investment dispute. Several countries, often at the expense of their sovereign rights, have engaged in unbridled foreign capital competition, which has resulted in a massive proliferation of BITs since the 1990s. This chapter contributes to the debate over whether BITs harm the institutional quality (IQ) of signatory countries due to the possibility established by BITs of resorting to international jurisdictions to settle potential investment disputes. Using a panel of data from 132 countries over the period 1984–2012, this study suggests that BITs have no significant effects on IQ. However, the results reveal a significant positive effect of BITs on the IQ of Southern countries. While BITs do not significantly affect some IQ components such as corruption, law and order, quality of bureaucracy, government stability, and investment profile, I find that BITs have a positive and significant effect on the socioeconomic conditions of Southern countries. Specifically, I find that South-North BITs have a significant and positive effect on socioeconomic conditions in host countries. In contrast, I find no significant effects of South-South BITs on IQ. I conclude that South-North rather than South-South investment cooperation BITs are beneficial to Southern countries, by improving their socioeconomic conditions.

Chapter 2 investigates some new determinants of investor-state disputes. In recent years, there has been a proliferation of disputes claims brought against investment host states by foreign investors, at the International Center for Settlement of Investment Disputes

(ICSID). This trend seems to be a natural consequence of the growing number of bilateral investment treaties (BITs) signed since the 1990s. This chapter seeks to further investigate the determinants of investor-state disputes by adding to existing analyses of claimants' home state characteristics and exploring other factors such as trade agreements and export partners that could potentially influence the incidence of disputes. The research herein provides strong evidence that weak institutions and the stock of FDI inflows into host states are key factors in explaining investor-state disputes. Also, BITs are not the only pass-throughs of investment disputes. I found that trade agreements are also determinant factors of investor-states disputes due to the investment protection provisions embedded in these agreements. Also, lingering colonial ties that allow for greater economic exchange between former colonial powers and their former colonies constitute a channel for investment disputes. These findings confirm that institutional quality still matters and suggest that developing countries that are primarily capital-importing countries via the signing of investment treaties could avoid unnecessary depletion of their scarce resources into international arbitration if they invest in improving their institutions.

Chapter 3 analyses the effects of double tax treaties on tax revenues. The recent surge of cross border investments has raised awareness on the question of double taxation, making policies on profits taxation of Multinational Corporation more than ever relevant. Governments in many countries rely heavily on tax revenues for different purposes such as provision of infrastructures, functioning of public administration and other social services. Double tax treaties negotiated between two sovereign states aim to reduce or eliminate the burden of double taxation on the same taxpayer and for the same subject

matter. The literature on double tax treaties generally suggests that double tax treaties might be harmful to treaty partners especially when there is an asymmetry between countries in terms of flows of foreign direct investment. This chapter examines the effects of Double Taxation Treaties on Tax Revenues using a panel data of 37 countries over the period 1990-2010. Using fixed effect and system GMM methods, the results show a bell shape relationship between tax revenue and tax treaties. The findings suggest that countries signing tax treaties should expect at least two effects: a positive effect of tax treaties on tax revenues in the short run followed by a diminishing effect in the long run.

Chapter 1: Do Bilateral Investment Treaties Erode Institutional Quality?

1.1 Introduction

> Consider the legal environment in which firms operate in most countries of Sub-Saharan Africa. Even though there are commercial laws on the books that govern the settlement of contractual disputes, courts are highly inefficient, costly to use, and potentially corruptible. Firms therefore rarely resort to them in practice. When Ghanaian firms were asked whether they would go to court following a dispute with a supplier or a client, fewer than 10 percent answered in the affirmative.
>
> (Rodrik, 2008)

> The popularity of BITs suggests that many investors are not confident about the legal and political environment in low- and middle-income countries. Given this fact, host countries believe they will benefit from signing a treaty that may seem on its face quite one-sided in favor of foreign investors.
>
> (Rose-Ackerman and Tobin, 2005)

There is a growing consensus among economists that institutional differences are a major factor in explaining why some countries are rich and others are poor. Unfortunately, this has been hard to demonstrate empirically, as many scholars have adequately documented reverse causality running from institutional quality to economic growth (Lipset 1960; Knack and Keefer 1995; Hall and Jones 1999; Aron 2000; Chong and Calderon 2000; Rigobon and Rodrik 2005; Chang 2011). Political risk and institutional quality are among the factors that foreign investors consider when it comes to making an investment decision, especially in developing countries. It is no secret that in many developing countries, institutional quality is very weak and the enforcement of property rights is not a common practice. Indeed, a country's institutional quality can influence the type of foreign investors who are attracted to that country. Hellman et al. (2002) found not only that countries with weak institutions attract a limited amount of foreign investment, but

that those countries only appealed to investors of lower quality with regard to the government standards exported. Given all this evidence of the importance of institutional quality, what do institutions really encompass?

Defining institutions is challenging, as the concept is both broad and fluid. North (1990) defines institutions as "the rules of the game in a society, or more formally, as the humanly devised constraints that shape human interaction." He goes on to distinguish between formal and informal institutions; formal institutions include the rules created by individuals such as constitutions, while informal ones include conventions and codes of behavior. Their role is to eliminate any uncertainty that may hamper human interaction in society.[1] Grief (2006, 28) defines an institution as "a system of rules, beliefs, norms, and organizations that together generate a regularity of (social) behavior." A central theme of Grief's analysis of institutions, compared to North's, is the incentives individuals have in society to follow rules, beliefs, and norms. The substance of his analysis is to examine why people follow rules, instead of just assuming that they do.

The idea that investment agreements might affect the institutional quality of countries is part of a broad and controversial topic in development economics examining to what extent states can change or restrict their own behavior as a result of commitments to international agreements. Several researchers have investigated this question, but their findings have not produced a consensus. Downs et al. (1996) find that international commitments do not actually affect states' behavior, but instead help identify those states

[1] Furthermore, North (1991) defines institutions as "the humanly devised constraints that structure political, economic and social interactions."

that are prone to comply. However, authors such as Abbott and Snidal (2000) think otherwise. The goal of this article is to shed more light on this important topic.

The present article contributes to the debate about whether international investment agreements affect signatory countries' institutional quality. The idea that investment agreements might influence the IQ of signatory countries can be first attributed to Daniels (2004), who proposed that BITs, by bypassing the domestic legal systems of developing countries, might negatively affect their quality of governance. The present study also extends this literature by accounting for (1) omitted variables such as legal origins and educational levels that are key determinants of IQ; (2) endogeneity issues that could have confounded estimates in previous studies, potentially limiting their findings; and (3) longer time series. In addition to expanding the period of investigation, this article is the first to explore the heterogeneous effects of BITs on IQ specifically for North and South partners.[2]

I employ the Generalized Method of Moment (GMM) system to investigate the effects of BITs on institutional quality in the full sample and in the subsamples (North and South). I seek to answer the following questions: (1) Do BITs erode or improve institutional quality? (2) What are the effects (if any) of BITs on IQ in Northern and Southern countries, respectively? (3) What are the differential effects of North-North BITs, North-South BITs, South-North BITs, and South-South BITs on IQ? and (4) What are the effects of BITs on the components of IQ specifically?

[2] I have defined Northern countries as the high-income OECD and EU countries. The remaining countries in the sample are referred to as Southern.

These questions are of great importance, because treaty partners often have very diverse bargaining powers at the negotiation table when treaties are designed. An investment treaty signed between a Southern country and a Northern country may not be as binding or equally forceful as one signed by the same Southern country with another Southern country. Therefore, it is reasonable to think that BITs, if they have an effect at all, might have different effects on the IQ of countries negotiating a treaty, depending on the respective development levels or power of those countries.

Using a sample of 132 countries over the period 1984–2012, I found that BITs have positive and significant effects on IQ for Southern signatories, specifically the socioeconomic component of institutions. Furthermore, the empirical results suggest that North-North BITs and South-North BITs have positive and significant effects on IQ, while North-South BITs and South-South BITs appear insignificant in this regard.[3] Overall, the findings indicate that BITs have improved the institutional quality of the full sample.[4] An analysis of the effects of BITs on the subcomponents of the IQ index suggests that BITs have no significant effects on Corruption, Law and Order, Quality of Bureaucracy, Government Stability, and Investment Profile. The absence of significant effects of BITs on these components is robust to using alternative definitions of institutions. It is worth mentioning that the effects of BITs on IQ have been examined using a measure of the number of BITs signed based on their date of signature and their

[3] "South-North BITs" refers to BITs signed by a Southern country with Northern countries; in other words, the North has an effect on the South.

[4] This result stems from the positive effects of BITs on the socioeconomic conditions of Southern countries, which represent about 71% of countries in the sample.

date of entry into force. The results suggest that BITs are effective in improving IQ after they enter into force.

The remainder of this chapter is organized as follows. The next section presents some background on investment treaties, and section 3 follows with a review of the literature on BITs in relation to institutions. The empirical methodology and the results are presented in sections 4 and 5, respectively. In section 6, I discuss the sensitivity analysis of the findings. Lastly, concluding remarks are presented in section 7.

1.2 Background on BITs and Theory

Bilateral investment treaties are agreements established between two countries that are meant to govern investment activities between them. In other words, BITs are legal instruments signed between states that take on the force of international law and govern the rights and obligations of states that host foreign capital within their jurisdictions (Salacuse and Sullivan 2005). All BITs are structurally similar, but some contain more details depending on the requirements of the host country. A typical BIT is structured around the following concerns: scope of application, conditions for the entry of foreign investment, general standards of treatment, monetary transfers, operational conditions of the investment, protection against expropriation, compensation for losses from internal disorder, and settlement of dispute.

The role of BITs is twofold. The first is to promote a liberal investment regime. In fact, BITs can be perceived as instruments of a liberal investment policy founded on the three key principles of investment: neutrality, investment security, and market facilitation. BITs should then contain some provisions to reflect those principles accordingly. The second role of BITs is to serve as instruments of liberal legalism, because they support the rule of law. The establishment of the rule of law enacted by governments is intended to promote economic growth. It is well known that countries with good quality of governance, in addition to attracting more foreign direct investment (FDI), also enjoy better economic growth than countries with weak governance. For example, among East Asian countries, it has been shown that institutional quality is highly predictive of economic growth. Some authors believe that FDI is most effective in countries that have sound institutional frameworks. In addition, in capital-importing

countries, BITs help form the institutional framework, which is essential for reaping the full benefit of foreign investment (Kenneth 2010; Rodrik 1997).

It is worth noting that the roles of a BIT might differ depending on the contracting partner. For developed countries, the primary goal of an investment agreement is to set up international legal rules, along with enforcement mechanisms, to protect foreign investors against malfeasance by the host states. The second role is to create a competitive environment among capital-importing states that will induce other states to ease access for foreign investors. On the other hand, developing countries, in signing BITs, aim to promote and attract foreign investments by reducing the risks that potential foreign investors might face. Also, political and economic reasons may facilitate the signing of investment agreements. Even though signing BITs provides some investment security to foreign investors, there is still the risk that a country, even knowing the consequences it may incur, might yet for various reasons breach the signed investment treaty. This raises the notion of time inconsistency.

Guzman (1998) was the first to identify the problem of the dynamic inconsistency of bilateral investments treaties in relation to FDI.[5] He argues that this problem represents a serious impediment to foreign investment and notes that, in the absence of an international agreement, countries are unable to commit themselves to legal rules. Investors, when undertaking an investment in a foreign country, incur at least two risks: an economic risk inherent to business activities and a political risk that might result from the interference of the government. Such interference is generally in the form of an

[5] Also known as "time inconsistency," dynamic inconsistency specifically refers to situations in which a "future policy decision that forms part of an optimal plan formulated at an initial date is no longer optimal from the viewpoint of a later date, even though no new information has appeared in the meantime" (Blanchard and Fischer 1977).

alteration of the clauses of an investment agreement, or in an extreme case the expropriation of the business.[6] Guzman (1998) argues that, on the domestic level, the only way to avoid dynamic inconsistency is for both parties to agree upon a private contract enforced only within the domestic jurisdiction. On the international level, investors might be reluctant to invest in foreign countries due to the dynamic inconsistency concern. The inability of sovereign states to credibly commit themselves to legal rules, and the possibility that these states might later change the rules once the investment is sunk, make it implausible that the parties might reach an optimal agreement.

The interests of foreign investors are best protected when an investment agreement is signed under international law. Even if the enforcement mechanisms under international law are weak, foreign investors prefer investments governed by international law to those covered by domestic private contracts. BITs appear, therefore, to be a means to mitigate the dynamic inconsistency problem in which the optimal policy ex-ante of the host-country government becomes suboptimal ex-post. Most governments want to protect their reputation and send good signals to potential investors (Guzman 1998).

Here, I will briefly address the theoretical justification for why international investment treaties might affect institutions. The literature generally distinguishes between two competing views on this issue. According to the first view, a commitment to international rules could serve to complement local institutions, at the same time reinforcing a state's credibility both internationally and domestically in the eyes of

[6] Political risk is defined as "the risk that the laws of a country will unexpectedly change to the investor's detriment after the investor has invested capital in the country, thereby reducing the value of the individual's investment." It includes the risks that a government will raise import or export duties, increase taxes, impose further regulations, or nationalize or expropriate the assets of the investor (Comeaux and Kinsella 1994).

potential investors. When a capital-importing country makes an international commitment, that sends a positive signal to investors, who see the signatory country as a business-friendly environment and a good destination in which to operate. This creates a competitive environment for foreign and local businesses that could improve the independence of the domestic judiciary system. But note here that this view makes the implicit assumption that domestic courts will comprehend and analyze all costs and benefits of the state's commitment, so as to make some improvements domestically in order to remain competitive with the international court. The second view suggests that, for countries with a weak institutional quality, international commitments could serve as a replacement or substitute for domestic institutions, enabling signatory countries to remedy the disadvantages of their own institutions. However, the domestic courts of these countries will then have no incentive to improve their quality.

Even when BITs serve to complement domestic institutions, they can still have a detrimental effect on local institutional quality. In fact, under international investment agreements such as BITs, foreign investors can bring investment disputes to international courts without first seeking settlement at the domestic court level, especially when they fear unfair treatment. As when BITs operate as substitutes for domestic institutions, BITs serving in a complementary role could degrade those institutions, leading to the stagnation of institutional quality, the effects of which might be more pronounced for countries with weak institutions. It is also possible that BITs can operate in both ways simultaneously in a country, with one approach annihilating or amplifying the effect of the other. In sum, these two views of how BITs affect institutions provide a theoretical

justification for the potential effects on institutional quality of bilateral international treaties.

1.3 Review of Literature

Regarding the determinants of institutions, La Porta et al. (2000) among others (Hayek 1960; Beck et al. 2002) argue that the protection of foreign investors has differed greatly from nation to nation. They document that common-law nations have the most protective rules toward foreign investors, while the French civil-law countries have the least protective rules. Substantially, these authors find that countries with French legal traditions value states' rights more than individual rights. In an intermediary position between these legal systems are the German and Scandinavian civil laws. Interestingly, the authors cited above note a high correlation between the quality of law enforcement and the level of development across countries. In more developed countries, law enforcement seems to be of a higher quality, but differing legal systems across a spectrum of countries affects more than just their political institutions. For instance, Demirguc-Kunt et al. (2001) find supportive evidence that divergence in countries' legal systems accounts for a great deal of variation in their financial institutions. Another important determinant of institutional quality is trade openness. Wei (2000) and Knack and Azfar (2003) have divergent views on the effect of trade openness on institutions. Wei (2000) puts forth the view that the willingness of countries to invest in building good institutions depends on their trade capability. He finds that "natural openness" is significantly and negatively associated with the corruption level.[7] Furthermore, he stipulates that openness

[7] Wei (2000) distinguishes between natural openness and residual openness. He defines natural openness as the portion of trade intensity (the sum of exports and imports as a percentage of GDP) explained by population and other geographic variables.

to trade requires countries to work on improving their governance quality. Yet, Knack and Azfar (2003) argue that greater openness can actually lead to more corruption. With respect to the quality of governance, Buss and Gröning (2009) find evidence of a highly significant positive effect of trade openness on governance quality.

In addition, many scholars (Lipset 1960; Milligan et al. 2004; Rindermann 2006) find that education is positively associated with institutional quality. In fact, Lipset (1960) argues that the more people receive education, the more they are disposed to embrace democratic values and observances. Supportive evidence of the positive effect of education on democracy, civil rights, rule of law, and political freedom is provided by other scholars (Stouffer 1955; William 1978; Bobo and Licari 1989; Milligan et al. 2004; Rindermann 2006). Truex (2010) suggests that easy access to education can deter the tendency toward corruption in developing countries.

Many other variables such as natural resources and ethno-linguistic fragmentation have been found to influence institutional quality. The link between natural resources and institutions is well established in economic literature. Sachs et al. (1999) point out that, due to poor political decisions, the abundance of natural resources in many countries is depleted through consumption instead of being utilized as a lure for investment. Norman (2006) shows that the nature of the effect of resource abundance on rule of law depends on the type of resource. A negative association is found between aggregate mineral wealth and rule of law. Several scholars in economics (Canning and Fay 1993; Mauro 1995; La Porta et al. 1999) have found that ethno-linguistic fragmentation—a measure of a country's diversity—can affect institutional quality because the more heterogeneous a country is, the more likely it is to experience internal tension, especially when the country

boasts abundant natural resources. Table 1 presents a summary of the determinants of institutional quality as compiled from the economic literature.

A handful of previous papers that have examined the effect of BITs on the domestic institutions of host countries can be pointed out. To the best of my knowledge, Daniels (2004) was the first to put forth the idea that BITs may have a negative impact on domestic institutions. He argues that foreign investors prefer to rely on international institutions for dispute settlement, and therefore there is no effort on their part to engage in actions to improve local institutions. In an empirical investigation, Ginsburg (2005) compares the institutional characteristics of countries that adopted BITs in 1996 with some countries that did not sign any BITs. He found that countries with quality institutions are more likely to engage in bilateral treaties than those with weak institutions. Ginsburg then analyzed the impact of BIT adoption on corruption control, regulatory control, rule of law, and government effectiveness. He concludes that the ability of foreign investors to resort to international jurisdiction for dispute settlement may be detrimental to the domestic institutions of host countries.

A second empirical paper that has investigated the effects of BITs on institutions is by Sasse(2010). Using government effectiveness, regulatory quality, rule of law, and control of corruption as measures of institutions, he found that the adoption of BITs had no robust or significant effect on the quality of governance. This dearth of significant effects of BITs on institutional quality may be due to certain econometrics issues affecting the estimations. Specifically, the variable of interest and other control variables are potentially endogenous. Additionally, there are omitted variables in his specifications

such as education and legal origins that may affect IQ. Such econometrics issues are expected to bias the results and render inconsistent the coefficient estimates on BITs.

Also, one can argue that investment agreements could affect the institutional quality of host countries differently. This argument rests on the fact that Northern and Southern countries have different conditionality requirements when it comes to doing business with foreign investors. Countries such as China, Brazil, and developing countries more generally have low conditionality requirements for their economic relations with other Southern countries. For instance, China applies relatively lax standards such as low interest rates and lack of policy conditionality requirements when making loans to developing countries such as those in Latin America (Gallagher et al. 2012). Because of its pledge of noninterference in the internal affairs of foreign countries, China has provided aid to some corrupt African governments such as Sudan and Zimbabwe that pay little attention to human rights and good governance, thus contravening Western countries' efforts to encourage better governance in developing countries. In contrast, developed countries such as the United States, Great Britain, and other OECD countries have taken action either by enacting legislation or by imposing legal barriers to raise the institutions of developing countries up to their own standards, as exemplified by the US Foreign Corrupt Practices Act (1977) and the UK Bribery Act (2010). Foreign investors consider all of these standards, in practice in Northern countries and to a lesser extent in Southern countries, when making investment location decisions. Foreign investors of Southern origin are believed to have certain advantages over their counterparts in Northern countries because of their familiarity with the markets in the South. This might explain the recent surge of foreign investment by Southern investors

in Southern countries (Azemar et al. 2012).[8] These observations suggest that foreign investors from Southern countries have a "competitive edge" over their counterparts from developed countries in investing in developing countries, and one should naturally account for a heterogeneous effect in the North and the South when it comes to evaluating the effect of bilateral investment treaties on the institutional quality of signatory countries.

Lastly, to my knowledge no previous study has investigated the effects of BITs on socioeconomic conditions in signatory countries. But a few papers have studied the effects of FDI on related outcomes such as economic growth, poverty, and welfare, topics that are more generally measured using the Human Development Index (HDI) published annually by the United Nations Development Program (UNDP). Sharma and Gani (2004) published one of the earlier papers examining the effect of FDI on the HDI, finding a positive and insignificant effect in fixed-effect estimation on samples of low- and middle-income countries. In the same vein, FDIs are most effective in improving HDI in developing countries that have: (1) some policy restrictions in sectors in which foreign firms can operate and; and (2) policy discrimination between foreign and local firms (Reiter and Steensma 2010). In the case of African countries, FDIs improve the HDI globally across the continent and at a various extent in regional blocks of the continent (Gohou and Soumare 2012).

South-North and South-South analyses of the effects of FDI on socioeconomic conditions in Southern countries have not been addressed by previous studies. This article aims primarily to investigate the effect of bilateral investment treaties on institutions and

[8] Since around 2005, between one-third and one-half of total FDI inflows into developing countries were reported as coming from other developing countries (UNCTAD 2006).

also on different dimensions of institutions. And BITs can affect socioeconomic conditions through the foreign investment they attract. In fact, many scholars (Neumayer and Spress 2005; Egger and Pfaffermayr 2005; Rose-Akerman and Tobin 2005) have found supportive evidence that BITs increase FDIs in host countries. This article is the first to address the socioeconomic effect of BITs and to add South-North and South-South analyses to this study in developing countries.

1.4 Empirical Methodology

1.4.1 Model Specification

Following Acemoglu et al. (2008), I have adopted the following specification for my benchmark regression analysis to investigate the effects of BITs on institutional quality. Specifically, I have:

$$\mathrm{Inst_{it}} = \alpha \mathrm{Inst_{it-1}} + \gamma \mathrm{CBITs_{it-1}} + X'_{it-1}\beta + \mu_t + \vartheta_i + \varepsilon_{it} \qquad (1)$$

The variable $Inst_{it}$ is the institutional quality index for country i during period t, and $Inst_{it-1}$ is the lagged institutional quality variable. The dynamic specification is expected to capture the slowly changing and path-dependent nature of institutional development. The implicit assumption is that the past state of the institutional quality in a country influences its current state.

$CBIT_{it-1}$ represents the cumulative number of BITs signed by country i during period t-1. Using a cumulative number of BITs helps account for the deferred and lasting effect that BITs might have on $Inst$. The parameter of interest is γ in this specification. The economic reason for including the lagged BITs is in part to account for the institutional nature of BITs. The BITs variable is created using the date of entry into force rather than the date of signature. Also, it is more likely that the full economic effect of a BIT signed

in a given year will be spread over a number of subsequent years and not contemporaneously.

X_{it-1} is a vector of control variables and includes GDP per capita (constant 2005 US$); Trade Openness, defined as the sum of exports and imports as a percentage of GDP; Education, measured by enrollment in secondary education; Natural Resources (rents from oil, natural gas, etc.) as share of GDP; and Total Population. A detailed description and definition of all the variables used in the estimations is provided in Table 8 in the appendix.

Finally, ϑ_i represents a country's fixed effects, while μ_t denotes a set of time dummies capturing shocks affecting all countries' institutions globally, and ε_{it} is the idiosyncratic error term capturing probable omitted factors.

Drawing from the review of literature on institutions and their determinants, I expect both GDP per capita and Education to be positively associated with institutional quality. Also, I expect natural resource dependence to have a negative effect on institutions. I expect a state's legal system to be positively and highly significant in determining institutional quality. Regarding the effect of trade openness, there is no robust evidence. Some authors (Wei 2000, among others) find that openness has a positive effect in reducing corruption, while others think otherwise (Knack and Azfar 2000). Likewise, no clear-cut causal relationship can be determined between country size and institutions. For instance, while Root (1999) and Fisman and Gatti (2002) argue that larger countries are more corrupt than smaller ones, Knack and Azfar (2003) argue otherwise.

As discussed in the previous sections, the main purpose of this study is to investigate whether investment agreements at the bilateral level have significant effects on the institutional quality of the signatory countries. There are two parties involved in this contract: the home country of the investor and the host country of the investment. These two countries, at the moment of signing these agreements, are at differing levels of development and have different bargaining powers. From that perspective, I postulate the following hypotheses.

Hypothesis 1: The overall effect of BITs on institutional quality depends largely on the concurrent BITs' effects on the IQ of the subsamples (North and South) that form the whole sample. The resulting effect will depend on the direction (signs) and the intensity (magnitudes) of the BITs' effects on those two specific country groups.

Hypothesis 2: BITs are mostly initiated by developed countries, and these countries are mostly known to have good institutional quality; thus, one can reasonably assume that investment agreements will have from little to no significant effect on their IQ. On the other hand, BITs might have significant effect on the IQ of Southern countries because of their lower average institutional quality. Also, the effect might differ depending on negotiations between the treaty partners, due to their unequal bargaining power. The United States might affect a developing country's IQ more effectively than China does. Therefore, North-North BITs, North-South BITs, South-North BITs, and South-South BITs are expected to affect institutional quality.

1.4.2 Estimation Strategy

To avoid the spurious regression problem, I first performed the unit root test in all time series used in the specifications. From the United Nations Conference on Trade and

Development (UNCTAD)'s website, I enumerated for each country the number of BITs signed in a given year. I assign "0" when there is no BIT signed in that year. The cumulative number of BITs is used in all specifications. I performed the unit roots tests using IPS (2003) procedure.[9] The IPS test shows that all variables are I(1), that is, integrated of order 1. I then performed the KPSS test on the level and the difference of those variables.[10] The results show that none of the variables are stationary in level, and that the differentiated variables are stationary. This makes the use of a differenced equation and dynamic system GMM appealing for the estimations.

One natural way to address nonstationarity is to estimate equation (1) in differences, which gives the following specification:

$$\Delta \mathrm{Inst}_{\mathrm{it}} = \alpha \Delta \mathrm{Inst}_{\mathrm{it}-1} + \gamma \Delta \mathrm{CBIT} s_{it-1} + \Delta \mathrm{X}'_{it-1} \beta + \Delta \mu_t + \Delta \varepsilon_{\mathrm{it}} \quad (2)$$

Many issues surround the estimation of equation (2). First, as pointed out before, all variables in the specification are nonstationary, while their first differences are stationary. Second, my variable of interest, cumulative BITs, and other control variables such as GDP per capita are potentially endogenous. With regard to the endogeneity of the BITs variable, it can be argued that it is the quality of a host state's institutions that makes those states attractive to foreign investors in the first place. Moreover, once the investment agreements are signed and investors have invested in the host countries, the agreements may affect the domestic legal system by different means (corruption or other mechanisms). That is, there is a possibility of feedback effect between the BITs and

[9] The Im-Pesaran-Shin (2003) procedure allows for heterogeneity coefficients. It relaxes the assumption of a common autoregressive parameter and doesn't require a balanced panel. The null hypothesis is that all individuals follow a unit root process, and the alternative is that some individuals follow a unit root.

[10] The KPSS test was developed by Kwiatkowski, Phillips, Schmidt, and Shin (1992), who derived a way of testing the stationarity of a series based on the null hypothesis that the series is stationary, I(0) as opposed to the ADF and PP (Augmented Dickey Fuller and Phillip Perron) tests, which test the null that the series is nonstationary, I(1).

institutional quality variables. The third issue is the slow-moving nature of the dependent variable, which is the institutional quality variable (see figure 2 in the appendix). To mitigate this issue, I explore different possibilities: annual data, five-year averages, and five-year lags (i.e., every five years).

To estimate equation (2), I utilized the dynamic system Generalized Method of Moment (GMM) estimator developed by Blundell and Bond (1998).[11] This method capitalizes on the fact that (1) lag two of institutional quality, $\mathrm{Inst}_{\mathrm{it}-2}$, is uncorrelated with the differenced errors terms $\Delta\varepsilon_{\mathrm{it}}$, which therefore constitutes a natural candidate as instrument for $\Delta\mathrm{Inst}_{\mathrm{it}-1}$,; and (2) additional instruments are lag three and further lags of the institutional quality variable, because these lag variables are also uncorrelated with $\Delta\varepsilon_{\mathrm{it}}$.

The GMM estimator accounts for those instruments in the following orthogonality conditions: $\mathrm{E}(\mathrm{Inst}_{\mathrm{t}-\mathrm{s}}\Delta\varepsilon_{\mathrm{it}}) = 0 \text{ for } \mathrm{t} = 3, \ldots, \mathrm{T} \text{ and } 2 \leq \mathrm{s} \leq \mathrm{T} - 1$ (3)

$\mathrm{Inst}_{\mathrm{t}-\mathrm{s}}$ are the lags of the dependent variable instruments. As there is one more instrument in time t compared to t-1, the number of valid instruments increases dramatically with the time period T, leading to a finite sample bias.

To circumvent those issues, I chose to estimate a system GMM that allows me to estimate equations 1 and 2 as a system. In other words, the level and the differenced equations are estimated simultaneously using the orthogonality conditions (3):

[11] The Arellano and Bond estimators perform poorly if the autoregressive parameters are too large or if the ratio of the variance of the panel-level effect to the variance of idiosyncratic error is too large. Blundell and Bond (1998) developed a system estimator that uses additional moment conditions based on the previous work of Arellano and Bover (1995).

$$\begin{pmatrix}\Delta Inst_{it}\\ Inst_{it}\end{pmatrix} = \alpha\begin{pmatrix}\Delta Inst_{it-1}\\ Inst_{it-1}\end{pmatrix} + \begin{pmatrix}\Delta CBITs_{it-1} & \Delta X'_{it-1}\\ CBITs_{it-1} & X'_{it-1}\end{pmatrix}\begin{pmatrix}\gamma\\ \beta\end{pmatrix} + \begin{pmatrix}\Delta\mu_t\\ \mu_t\end{pmatrix} + \begin{pmatrix}\Delta\varepsilon_{it}\\ \vartheta_i+\varepsilon_{it}\end{pmatrix} \quad (4)$$

The GMM estimation methodology rests on the assumption that the original error terms are unrelated. Therefore, we just test for first- and second-order correlation in the error terms, and the presence of correlation in the residuals invalidates the use of endogenous variable as instruments. It is recommended to reject the null of the absence of first-order correlation and to fail to reject the absence of the second-order correlation (Baltagi 2005). Also, because the number of instruments used in the GMM estimation explodes exponentially with the time period T, there is a possibility that these instruments overfit the endogenous variables. Therefore, it appears natural to test for overidentification. This is generally done by means of the Sargan Test using the J statistics of Hansen, distributed as chi-squared with the null hypothesis of valid instruments. The success of the GMM estimation is obtained by the convenient use of a tradeoff between the reduction of bias introduced by large instruments and the efficiency gain.

1.4.3 Data and Descriptive Statistics

I obtained the data on BITs from UNCTAD and gathered some of the control variables from the World Development Indicators of the World Bank. The data on institutional quality are from the International Country Risk Guide (ICRG 2012). This publication provides data on country risk over three dimensions—political, financial, and economic—for more than 140 countries during the period 1984–2012. In the context of this article, I have focused only on the political risk dimension, which comprises twelve components. Five of these components take values from 0 to 10, six of them range from 0 to 5, and the last variable takes values from 0 to 4. The BITs data are the bilateral

investment treaties themselves concluded between countries worldwide during the period 1984–2012. The choice of this time period is driven by the availability of data for the variables used in the different estimations, particularly data on the set of institutional quality components.

Not all of the twelve components of the political risk dimension are relevant for the present study. Following previous papers (Knack and Keefer 1995; Chong and Zanforlin 2000), I defined the institutional quality variable by taking the average of the six components most relevant to the context of this paper.[12] These components are: government stability, which varies from 0 to 12, where 12 indicates lowest risk and 0 means highest risk; investment profile, which varies from 0 to 12, where 12 likewise indicates lowest risk and 0 highest risk; and the socioeconomic profile, calibrated as the previous two components. The fourth component used is corruption, which varies from 0 to 6 and measures the extent and risk of corruption in the political system. Next, I included the rule of law component, which also varies from 0 to 6, with a score of 6 indicating a very good system of law. The last political risk component I included in constructing the institutional quality index is bureaucracy. This component reflects the strength of the bureaucracy and how likely it is that policies will change following the advent of a new government.

The choice of the six variables used to construct the institutional quality index is also supported by a principal component analysis. The eigenvalues' table (table 10) shows that the first six components explain about 85% of the total variation in the data, while the

[12]These six components are those likely to be affected by international commitments such as BITs. The remaining components, which are not directly under the control of states, are more likely affected by some exogenous factors. The remaining components that are not accounted for in the definition of the institutional quality index are: Internal and External Conflicts, Military in Politics, Religious Tensions, Ethnic Tensions and Democratic Accountability.

eigenvectors table (table 11) shows that for each of the six variables used to construct the IQ index, when using the first six components, between 8% and 20% of the variation in each variable is left unexplained. Before averaging the six components of the political risk variable to define the IQ index, I normalized all these components to correct for the different ranges of values, using the formula x-a/b-a, assuming that x has $[a, b]$ for support.[13] In doing so, I removed the scale effects of the six components retained, and I allowed each of these components to now range from 0 to 1. My final institutional quality variable is the average of the six components rescaled (multiplied by 10), ranging now from 0 to 10. A low score of the institutional quality variable is indicative of a highly risky country, and a high score for the variable reflects good institutional quality in that country.

Table 1 reports the descriptive statistics of variables used in the present study for the full sample and for the subsamples of the North and the South during the period 1984–2012. The mean values are reported, and the standard deviations are given in parentheses. The summary statistics are presented for annual data, five-year average, and five-year lag data. The sample countries here are those that signed BITs between 1984 and 2012. The selection of countries in the sample used in this study is determined by the availability of data on the dependent variable (institutional quality) and explanatory variables. For the annual data, the IQ variable has a mean of 5.66 with a standard deviation of 1.63 in the full sample, with a coefficient of variation of 28.80%. The Northern countries have the largest average IQ (7.33), while the Southern countries only have on average an IQ of

[13] X is one of the six components used to compute the Institutional Quality Index. For example, the government stability component takes on values between 0 and 12. The normalization process of this component entails multiplying the government stability component by 1/12.

5.24. These figures clearly show that the North has an advantage in institutional quality compared to the South.

The variable of interest is the (lagged) cumulative number of BITs signed by a country in year t-1. From the descriptive statistics of the annual data, on average, the cumulative number of BITs signed by a typical country in the full sample is about twenty during the period 1984–2012. The averages for the Northern and Southern countries are thirty-two and fifteen, respectively (see Panel A of table 1). However, in terms of average numbers of BITs signed annually, Northern countries have concluded two BITs (2.01) on average and Southern countries have signed about one BIT (1.06) on average. These figures are consistent with the stylized facts that: (1) BITs are mostly initiated by developed countries as a means to secure investments; and (2) most BITs are signed between developed and developing countries. In fact, according to the data collected by UNCTAD, most BITs (54.61%) are signed between Northern and Southern countries, while 32.59% of BITs are signed between two Southern countries, and only 12.80% of these investment agreements are concluded between two Northern countries.

As for the other control variables, the average percentage of enrollment in secondary schools for the full sample is 69.26%. School enrollment is a function of the level of development, and 99.57% of all children of school age are enrolled in secondary schools in the Northern countries, while only 57.00% are enrolled in the Southern countries. The disparity in terms of level of development as reflected by GDP per capita (constant 2005 US$) is striking; GDP per capita in Northern countries is, on average, $24,303, while for Southern countries the figure is $4,652. The North is less endowed with natural resources (1.90% on average) than the South (13.82%). Finally, the North appears to be more open

to trade (81.96%) than the South (78.79%). The control variables also include coastal distance and ethno-linguistic fractionalization. Table 1 shows that Southern countries are more fractionalized (with an index of 0.52) than their counterparts of the North (Index of 0.28).

Note here that the summary statistics for annual data, five-year averages, and five-year lag data presented in table 1 are very consistent and reflect similar patterns, at least regarding the control variables. The descriptive statistics suggest that: (1) wealthier countries have better institutional quality; (2) the mean values of explanatory variables for the two subsamples (North and South) seem to be proportional to their level of development, except for the natural resources variable for which Northern countries exhibit the lower mean value; and (3) there are few variations in the dependent variable (IQ), while most of the explanatory variables have high variation. In fact, the standard deviations of IQ vary between 1 and 1.6. The IQ as constructed takes on values between 0 and 10, with a coefficient of variation of 28.8% for the full sample, 16.65% for Northern countries, and 25.11% for Southern countries.

The takeaway from the summary statistics is that the coefficient of variations of IQ for each dataset shows that the five-year lag dataset demonstrates higher variation than the other two datasets (annual data and five-year averages). This observation indicates that it is preferable to use the five-year lag dataset in the estimations.

Table 1. 1 Descriptive Statistics

Panel A: ANNUAL DATA

	Full Sample	North	South
	(1)	(2)	(3)
Inst	5.66	7.33	4.98
	(1.63)	(1.22)	(1.25)
CV of Inst (%)	28.80	16.65	25.11
(Cumul) BITs	19.97	31.82	15.18
	(23.92)	(28.25)	(20.04)
GDPpc05(10^3)	10.31	24.30	4.65
	(14.40)	(16.37)	(8.46)
EduSec	69.25	99.57	57.00
	(31.75)	(15.03)	(28.33)
NatRes	10.39	1.90	13.82
	(14.33)	(3.27)	(15.60)
Trade	79.70	81.96	78.79
	(50.10)	(44.29)	(52.24)
Pop (10^6)	42.3	26.7	48.6
	(141)	(48.8)	(164)
dist_coast	0.31	0.21	0.35
	(0.37)	(0.26)	(0.40)
Ethnic	0.44	0.24	0.52
	(0.26)	(0.18)	(0.24)

Panel B: EVERY 5 YEARS DATA

	Full Sample	North	South
	(1)	(2)	(3)
Inst	5.60	7.33	4.90
	(1.69)	(1.27)	(1.28)
CV of Inst (%)	30.17	17.33	26.12
(Cumul) BITs	16.84	26.93	12.76
	(23.26)	(28.71)	(19.24)
GDPpc05(10^3)	10.24	23.97	4.69
	(14.31)	(16.28)	(8.58)
EduSec	68.96	98.78	56.91
	(31.67)	(14.78)	(28.56)
NatRes	10.32	1.90	13.72
	(13.94)	(3.23)	(15.12)
Trade	79.69	82.97	78.37
	(50.23)	(45.86)	(51.87)
Pop (10^6)	41.8	26.60	48.00
	(140)	(48.6)	(162)
dist_coast	0.31	0.21	0.35
	(0.37)	(0.26)	(0.40)
Ethnic	0.44	0.25	0.52
	(0.26)	(0.19)	(0.24)

Panel C: 5Years Average

	Full Sample	North	South
	(1)	(2)	(3)
Inst	5.64	7.32	4.96
	(1.61)	(1.20)	(1.21)
CV of Inst (%)	28.55	16.39	24.40
(Cumul) BITs	19.33	30.81	14.69
	(23.57)	(28.05)	(19.70)
GDPpc05(10^3)	10.10	23.73	4.59
	(14.14)	(16.09)	(8.42)
EduSec	68.14	98.87	55.73
	(31.72)	(14.65)	(28.12)
NatRes	10.28	1.93	13.65
	(13.85)	(3.18)	(15.03)
Trade	78.43	80.45	77.62
	(48.60)	(42.48)	(50.88)
Pop (10^6)	41.5	26.5	47.5
	(139)	(48.3)	(161)
dist_coast	0.31	0.21	0.35
	(0.37)	(0.26)	(0.40)
Ethnic	0.44	0.24	0.52
	(0.26)	(0.19)	(0.24)

Notes: This table contains the mean value of each variable over the period 1984-2012 and the standard deviations are in parentheses. The main dependent variable is the institution index defined as the average of the normalized six subcomponents, which are (1) Corruption, (2) Law and Order, (3) Investment Profile, (4) Quality of Bureaucracy, (5) Government Stability and (6) Socioeconomic Conditions. The explanatory variables used in the estimations are the lagged variables. The measures of institution are based on the ICRG data 2012. Each of the institutional variables are rescaled and takes on values from 0 to 10, with 0 (very low institutional quality) and 10 (very good institutional quality). The North countries comprise the High-income OECD and EU countries.

Figure 1 in the annex presents the fifteen countries that have signed the most BITs in the full sample, and the ten countries from both the North and the South that have signed the most BITs over the 1984–2012 study period. Of all the countries in the sample, China has the largest number of investment agreements (141 BITs), followed by Germany and Egypt with 98 and 97 BITs, respectively. Besides China, other Southern countries that are very active in signing BITs are Egypt (98 BITs) and Turkey (89 BITs). The remaining top fifteen countries from the full sample are dominated by Northern countries, led by Germany and Italy and followed by Switzerland, the Czech Republic, South Korea, the Netherlands, and Belgium. In the South, apart from China, Egypt, and Turkey, other countries that are very active include Indonesia, Russia, and Ukraine. The top fifteen countries from the full sample include some African countries as well.

Table 10 in the annex presents the (unconditional) pairwise correlation matrix between the institutional quality variable and the explanatory variables. It also gives an idea about the expected signs of correlation among the dependent and explanatory variables. All the explanatory variables seem at first glance to exhibit the expected signs and have significant correlation with the dependent variable. Table 8 in the appendix presents the definition and sources of the variables used in this study.

1.5 Empirical Results

In this section, I present the estimation results of the system GMM equations (4) described in the methodology section above for the full sample as well as the two subsamples (North and South).

1.5.1 Preliminary Results[14]

The following results are based on a dataset constructed using five-year time intervals. Because the time dimension of the panel data covers twenty-nine years, from 1984 to 2012, to determine the five-year time intervals I defined the starting time period as beginning in 1984 and the second as beginning in 1987, with five-year periods established thereafter. This approach yields a total of seven time periods in the final data set. The estimation results using five-year periods are reported in table 2.The results in table 2 are similar to those obtained with the five-year averages[15]. The coefficients on the lagged dependent variables are all comparable in terms of magnitude (relatively small values) and are all statistically significant. However, the control variables on the FE estimations are all insignificant. One plausible reason for this is the bias introduced in the estimates by the presence of the lagged dependent variable and the endogeneity of the variable of interest (lagged cumulative BITs). For the difference GMM results, the Sargan Test of overidentification is not passed, as the P-values are all less than the conventional values. Also, control variables such as Ethnicity Fragmentation and Natural Resources, even though significant, bear the wrong signs. This might be due to misspecification, or it may be a result of overidentification. In contrast to the FE and difference GMM results, GDP per Capita and Education appear highly significant in the system GMM estimations. More importantly, the system GMM estimation passed the validity test of second-order serial

[14] In this preliminary analysis, I first undertook a Hausman test to see which estimation methodology, whether Fixed Effects or Random Effects, best fits the data. The test results are reported in table 14 in the appendix.

[15] In my attempt to overcome the slow-moving nature of the dependent variable (IQ) (see figure 2), I undertook the following approaches. I compared the estimations results of the five-year average with those of the annual data. In other words, I first investigated the effects of cumulative BITs on institutional quality using both annual and five-year average data for the full sample. The estimation results are reported in tables 12 and 13, respectively.

correlation (columns 5 and 6 of table 2). This means that there is no further serial correlation in the data when five-year lags are used. Of the three methodologies used (FE, Difference, and System GMM), System GMM appears to outperform the other two, as most of the control variables are significant and show the expected signs. Columns 5 and 6 of table 2 shows that GDP per Capita, Education, English Common Law, German Civil Law, and Scandinavian Civil Law are all positive and significant in accounting for institutional quality. Additional control variables such as Coastal Distance and Natural Resources appear insignificant even though they bear the expected negative sign (see column 6 of table 2). Furthermore, Openness to Trade has a weak positive and significant effect on IQ. It is noteworthy that the variable of interest (the lagged cumulative BITs) shows an insignificant effect on IQ in the full sample despite the facts that most of the control variables are highly significant with the expected signs and that the validity tests passed. This suggests that further investigations are needed to uncover the probable effects that (cumulative) BITs might have on IQ in the Northern and Southern countries.

Table 1. 2. Fixed Effect, Diff. GMM and Syst. GMM estimations, 5-year data

$Inst_{(t)}$	FE Full Sample		Diff GMM Full Sample		Syst. GMM Full Sample	
	(1)	(2)	(3)	(4)	(5)	(6)
$Inst_{(t-1)}$	0.3276*** (0.0372)	0.3290*** (0.0375)	0.3744** (0.1480)	0.3855*** (0.1460)	0.3786*** (0.0961)	0.3725*** (0.1003)
$CBITS_{(t-1)}$	-0.0025 (0.0018)	-0.0025 (0.0018)	0.0244 (0.0200)	0.0261 (0.0190)	-0.0009 (0.0029)	-0.0009 (0.0027)
$GDPpc_{(t-1)}$	0.0014 (0.0088)	0.0013 (0.0092)	-0.0012 (0.0316)	0.0008 (0.0311)	0.0392*** (0.0102)	0.0363*** (0.0094)
$EduSec_{(t-1)}$	0.0005 (0.0022)	0.0007 (0.0021)	0.0260* (0.0147)	0.0265* (0.0138)	0.0147*** (0.0044)	0.0140*** (0.0049)
$LNPop_{(t-1)}$	-0.1778 (0.3013)	-0.1843 (0.3057)	0.6280 (0.5595)	0.6746 (0.5483)	0.0248 (0.0303)	0.0514 (0.0336)
legor_uk					0.3616 (0.2616)	0.6878*** (0.1996)
legor_fr					-0.0202 (0.2969)	0.3351** (0.1670)
legor_ge					0.1669 (0.2536)	0.5358*** (0.1443)
legor_sc						0.5227* (0.3169)
legor_so					-0.3020 (0.3157)	
Ethnic		-0.1211 (0.1356)		1.2563*** (0.3696)		0.1279 (0.2736)
dist_coast						-0.1436 (0.0918)
$NatRes_{(t-1)}$		0.0034 (0.0038)		0.0134** (0.0067)		-0.0046 (0.0040)
$Openness_{(t-1)}$		0.0005 (0.0016)		-0.0005 (0.0022)		0.0018* (0.0010)
Constant	2.4947 (1.5185)	2.4308 (1.5857)			1.7729*** (0.6264)	1.7137** (0.6752)
Observations	792	792	660	660	792	792
R-squared	0.3675	0.3682				
# of country	132	132	132	132	132	132
Year FE	YES	YES	YES	YES	YES	YES
AR(1) Test			0.002	0.002	0.000	0.000
AR(2) Test			0.408	0.556	0.166	0.128
Sargan (P-value)			0.012	0.016	0.291	0.273
Instruments			14	17	23	27

Notes: The dependent variable is the Institutional Quality Index constructed as the simple average of six of the political risk components provided by the International Country Risk Guide (ICRG). Columns 1 and 2 give the FE estimation results;

Columns 3 and 4 give difference GMM estimation results, and columns 5 and 6 give the System GMM estimation results.

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

1.5.2 Effects of Cumulative BITs on Northern and Southern Countries

The previous analysis has shown that lagged cumulative BITs have no significant effects on institutional quality in the full sample. This lack of BIT effects on IQ might be masking some heterogeneity in such effects, thus suggesting that the same question directed at the North and South subsamples might reveal some interesting results. I therefore split the initial sample into North and South subsamples based on host and home countries. In doing so, the goal is to test whether BITs affect institutional quality in the Northern and Southern host countries differently.

Table 3 reports the estimations results of the effects of (cumulative) BITs on IQ in the South. As stated earlier, no significant effect of BITs on IQ is found in the case of fixed effects. This might be due to the endogeneity of the lagged dependent variable as well as of the variables of interest. However, the system GMM estimations seem to perform quite well. The system GMM results show that the English common-law tradition is a strong determinant of IQ in the South countries (see columns 3 and 6 of table 3). Also, GDP per capita and education remain strong determinants, and additional control variables such as openness to trade have a positive effect on IQ as well. In light of the system GMM results, which best address the endogeneity issue evoked above, one can reasonably say that an effective additional cumulative BITs improves the institutional quality by about 0.6% over the short term in the Southern countries. But, in the long run, the cumulative BITs' effect on the IQ of Southern countries is an improvement of about 1%.[16]

[16] The long-term effect is estimated by dividing the estimated coefficient of CBITs (γ) by 1 minus the coefficient on the lagged dependent variable (α). $LR\ effect = {}^{\gamma}/_{(1-\alpha)}$

I conducted a similar exercise for the Northern countries, for which I investigated whether BITs similarly help Northern countries improve their IQ. Not surprisingly, the results show no significant effects of (cumulative) BITs on the IQ of Northern countries.[17] In fact, it is less likely that an investment treaty signed between the United States and a developing country will have any significant effect on US institutional quality. This result does not indicate that developed countries such as the United States have already reached their institutional quality frontier or maximum level of IQ; it only indicates that the effect of investment treaties on the IQ of developed countries is nonexistent. Tables 3 and 4 clearly indicate that the system GMM appears more appropriate for estimating the effects of cumulate BITs on institutional quality. For the remainder of this article, I will exclusively rely on system GMM methodology for my estimations.

As a next step, I analyzed whether the positive effects of BITs on the IQ of Southern countries are conditional on the nature of the investment agreement. Specifically, I explored the following question: do North-North BITs, North-South BITs, South-North BITs, and South-South BITs affect institutional quality differently?

[17] To save space, I do not report the results when the effects of BITs are not significant.

Table 1. 3 Effect of BITs on Institutions of Southern Countries, 5-year data

$Inst_{(t)}$	Syst. GMM, Southern Countries					
	(1)	(2)	(3)	(4)	(5)	(6)
$Inst_{(t-1)}$	0.3278**	0.3227**	0.3196**	0.3174**	0.3168**	0.3010**
	(0.1368)	(0.1379)	(0.1367)	(0.1393)	(0.1374)	(0.1390)
$CBITS_{(t-1)}$	0.0063**	0.0059*	0.0061**	0.0060**	0.0057**	0.0052*
	(0.0030)	(0.0030)	(0.0029)	(0.0029)	(0.0028)	(0.0027)
$GDPpc_{(t-1)}$	0.0366**	0.0372**	0.0360**	0.0388**	0.0350***	0.0366**
	(0.0149)	(0.0150)	(0.0149)	(0.0162)	(0.0133)	(0.0144)
$EduSec_{(t-1)}$	0.0054***	0.0050**	0.0056***	0.0055***	0.0048***	0.0050**
	(0.0019)	(0.0021)	(0.0019)	(0.0019)	(0.0018)	(0.0021)
$LNPop_{(t-1)}$	-0.0060	-0.0077	0.0023	-0.0059	0.0249	0.0323
	(0.0327)	(0.0329)	(0.0329)	(0.0328)	(0.0384)	(0.0384)
legor_uk	0.3016	0.3239	0.5004***	0.2995	0.2907	0.3494***
	(0.2508)	(0.2511)	(0.1239)	(0.2598)	(0.2627)	(0.1277)
legor_fr	-0.1193	-0.1040	0.0818	-0.1158	-0.0669	0.0010
	(0.2451)	(0.2407)	(0.1014)	(0.2525)	(0.2590)	(0.1233)
legor_so	-0.1535	-0.1007		-0.1742	-0.0086	
	(0.2215)	(0.2311)		(0.2339)	(0.2471)	
legor_ge			0.3090			0.1494
			(0.2975)			(0.3281)
Ethnic		-0.1753				0.0001
		(0.2787)				(0.2575)
dist_coast			-0.1508			-0.1207
			(0.1416)			(0.1239)
$NatRes_{(t-1)}$				-0.0029		-0.0027
				(0.0044)		(0.0045)
$Openness_{(t-1)}$					0.0030**	0.0030**
					(0.0013)	(0.0013)
Constant	2.4502***	2.5567***	2.3694***	2.5232***	2.4503***	2.5490***
	(0.6541)	(0.7013)	(0.5992)	(0.6841)	(0.6515)	(0.6876)
Observations	564	564	564	564	564	564
# of Country	94	94	94	94	94	94
Year FE	YES	YES	YES	YES	YES	YES
AR(1) Test	0.002	0.003	0.003	0.003	0.003	0.004
AR(2) Test	0.323	0.314	0.309	0.3	0.249	0.223
Sargan (P-value)	0.510	0.515	0.518	0.513	0.530	0.540
Instruments	22	23	23	23	23	26

Notes: The dependent variable is the Institutional Quality Index constructed as the simple average of six of the political risk components provided by the International Country Risk Guide (ICRG). The variable of interest, $CBITS_{(t-1)}$, is the cumulative number of BITs signed by a country at time (t-1). The legal origin variables are: legor_uk which refers to English legal origin, *legor_fr* is the French legal origin, *legor_so* is the Socialist legal origin and *legor_ge* is the German legal origin. $NatRes_{(t-1)}$ refers to Natural Resources and $Openness_{(t-1)}$ is Openness to trade. The variable *dist_coast* refers to the coastal distance. The variable *Ethnic* refers to Ethnolinguistic Fragmentation.

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

1.5.3 Effects of Decomposed BITs on Institutional Quality

In this section, I will analyze the effects of the decomposed BITs (i.e., North-North, North-South, South-North, and South-South) on IQ using the full sample as well as the North and South subsamples. As a reminder, South-North BITs reflect the effect that the North exerts on the institutions of Southern countries. I first estimated the effects of decomposed cumulative BITs on IQ using the full sample, but the (unreported) results are not reliable because the validity test of the second order serial correlation failed.

I then looked at the effects of decomposed BITs on the IQ of Southern countries. Note here that the coefficients on the lagged dependent variable are weakly significant and have smaller magnitudes. This indicates a very weak inertia in the institutions of Southern countries (see table 4). Overall, the results show a positive, weak, and significant effect of BITs on institutions. I also note that, in this case, the AR(2) test passed. The key control variables GDP per Capita, Education, and Legal Origin dummies are all significant and consistent as expected. Column (1) reports the results of the baseline model. In the following, columns, (2) to (5), I report additional results when additional controls are added one at a time to the baseline model. In column (6), I report the estimation results when I controlled for all the explanatory variables. Except for Openness to Trade, the additional control variables (Ethnolinguistic Fragmentation, Coastal Distance, and Natural Resources) all appear insignificant, but they bear the expected signs. Openness to trade has a positive and significant effect on IQ (see columns 5 and 6).

More importantly, the results also reveal that South-North BITs have a weak and positive effect on institutions, while South-South BITs have effects on IQ that are insignificant and marginal. Control variables such as GDP per Capita, Education, and British Legal Origin are key determinants of IQ in the South subsample. The positive effect of South-North BITs (i.e., the effect of the North on the South) on the IQ of Southern countries is not consistently significant across specifications. Even though, in the last three columns, the effects are insignificant, these findings seem to suggest that South-North investment cooperation appears preferable for Southern countries in terms of improvement of their institutional quality. However, the same exercise conducted in the North subsample shows that neither the North-North BITs nor the North-South BITs appear to have any significant effects on the IQ of Northern countries. These findings might only be reflecting the fact that Northern countries have better IQ to begin with, so the effects of BITs and disaggregated BITs on their IQ are insignificant or nonexistent. The insignificant effects of North-South BITs should not come as a surprise. It is unlikely, for instance, that an investment agreement between the United States and a developing country such as Ghana will have any effect on US institutions. The weak effects of South-North BITs on IQ might be due to the fact that not all the six components of the IQ index react in the same manner to the investment agreements. For instance, some components, such as corruption, might not be very responsive, while others are. The effect of BITs on corruption is unclear, as is the effect of FDI on corruption. In fact, foreign firms may deal with corruption in host countries where they are investing in one way, while the host government, in an effort to attract foreign investment, might address its homegrown corruption in an entirely different way. Therefore, an investigation of the effects of

decomposed cumulative BITs on the components of the IQ index might be more revealing.

Table 1. 4 Effect of Decomposed BITs on Institutions, 5-year data, Southern Countries

$Inst_{(t)}$	Syst. GMM, Southern Countries					
	(1)	(2)	(3)	(4)	(5)	(6)
$Inst_{(t-1)}$	0.3116**	0.3057*	0.3007*	0.2958*	0.2997*	0.2766*
	(0.1561)	(0.1578)	(0.1562)	(0.1644)	(0.1579)	(0.1653)
$CBITS^{SN}_{(t-1)}$	0.0163*	0.0148*	0.0163*	0.0141	0.0142	0.0121
	(0.0087)	(0.0089)	(0.0087)	(0.0094)	(0.0087)	(0.0097)
$CBITS^{SS}_{(t-1)}$	0.0014	0.0015	0.0010	0.0022	0.0016	0.0021
	(0.0065)	(0.0066)	(0.0064)	(0.0068)	(0.0058)	(0.0062)
$GDPpc_{(t-1)}$	0.0381**	0.0387**	0.0376**	0.0402**	0.0364**	0.0378**
	(0.0162)	(0.0163)	(0.0162)	(0.0179)	(0.0147)	(0.0163)
$EduSec_{(t-1)}$	0.0050**	0.0047*	0.0052**	0.0052**	0.0044**	0.0048**
	(0.0022)	(0.0024)	(0.0023)	(0.0023)	(0.0021)	(0.0024)
$LNPop_{(t-1)}$	-0.0082	-0.0095	0.0007	-0.0073	0.0249	0.0343
	(0.0338)	(0.0340)	(0.0338)	(0.0343)	(0.0405)	(0.0409)
legor_uk	0.4226***	0.3986***	0.4701***	0.4462***	0.2635**	0.3228**
	(0.1361)	(0.1418)	(0.1434)	(0.1526)	(0.1192)	(0.1366)
legor_fr	-0.0133	-0.0439	0.0352	0.0110	-0.1046	-0.0406
	(0.0968)	(0.1147)	(0.1059)	(0.0981)	(0.1043)	(0.1206)
legor_ge	0.1073	0.0635	0.2712	0.1334	-0.0394	0.1222
	(0.2409)	(0.2473)	(0.3157)	(0.2566)	(0.2576)	(0.3415)
Ethnic		-0.1623				0.0142
		(0.2865)				(0.2694)
dist_coast			-0.1601			-0.1343
			(0.1471)			(0.1306)
$NatRes_{(t-1)}$				-0.0022		-0.0022
				(0.0047)		(0.0049)
$Openness_{(t-1)}$					0.0031**	0.0032**
					(0.0013)	(0.0013)
Constant	2.3813***	2.5558***	2.4757***	2.4739***	2.4902***	2.6743***
	(0.7417)	(0.8425)	(0.7387)	(0.7963)	(0.7684)	(0.7573)
Observations	564	564	564	564	564	564
# of country	94	94	94	94	94	94
Year FE	YES	YES	YES	YES	YES	YES
AR(1) Test	0.006	0.007	0.007	0.01	0.009	0.014
AR(2) Test	0.327	0.317	0.31	0.31	0.251	0.23
Sargan (P-value)	0.927	0.928	0.931	0.928	0.933	0.937
Instruments	24	25	25	25	25	28

Notes:The dependent variable is the Institutional Quality Index constructed as the simple average of six of the political risk components provided by the International Country Risk Guide (ICRG).. The variables of interest are now $CBITS^{SN}_{(t-1)}$ which captures the effects of North on South and $CBITS^{SS}_{(t-1)}$ which captures the effects of South on South.
The legal origin variables are: legor_uk which refers to English legal origin, *legor_fr* is the French legal origin, *legor_so* is the Socialist legal origin and *legor_ge* is the German legal origin. $NatRes_{(t-1)}$refers to Natural Resources and $Openness_{(t-1)}$is Openness to trade. The variable *dist_coast* refers to the coastal distance. The variable*Ethnic* refers toEthnolinguistic Fragmentation.
Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

1.5.4 Effects of BITs and Decomposed BITs on the Components of Institutions

In this section, I look at the possible effects of cumulative BITs, North-North BITs, North-South BITs, South-North BITs, and South-South BITs on the components of IQ for the full sample and the two subsamples (North and South).[18]

The results reported in Table 5 suggest that BITs have an overall positive effect on socioeconomic conditions in the full sample. It is worth recalling that the socioeconomic conditions component of the IQ index I use is made up of three subcomponents, namely unemployment, consumer confidence, and poverty. These findings indicate that BITs have a positive impact on host countries by creating jobs, boosting consumer confidence, and reducing poverty. The results should not come as a surprise, as most studies have found that BITs, by attracting FDI, in turn generate positive spillovers in the recipient countries, especially in the South.

I conducted a similar analysis in Southern countries, and the findings confirm the aforementioned results. As with the full sample, the results reported in Table 6 suggest that cumulative BITs also have significant effects on the socioeconomic conditions of Southern countries, as expected. The significant effects seen in the full sample must be due to such effects occurring specifically in the Southern component of the full sample. Once again, these results suggest that BITs have positive effects on job creation and poverty reduction in the Southern countries, which is consistent with the results obtained

[18] The components of institutional quality that I used are: *Corruption*, *Law and Order*, *Quality of Bureaucracy*, *Government Stability*, *Investment Profile*, and *Socioeconomic Conditions*.

by Adams (2009) and Gohou and Soumare (2011), who found that FDI flows have a positive impact on growth and poverty reduction in Africa, especially sub-Saharan Africa.

I conducted a similar exercise on the five other components of the IQ index. The results show no significant effect of BITs on corruption, quality of bureaucracy, law and order, investment profile, or government stability (appendix, table 17). For government stability, I note a negative and significant effect, but the model does not seem to perform very well, as all other control variables are insignificant. Of the six variables on which the effects of BITs were tested, only the socioeconomic conditions variable appears to react significantly and consistently across specifications. Thus, in the next section, I explore the effects of different directions of investment treaties on the institutional quality of Southern countries.

Table 1. 5 Effect of BITs on Socioeconomic Conditions, 5-year data, Full Sample

$SC_{(t)}$	Syst. GMM, Full Sample					
	(1)	(2)	(3)	(4)	(5)	(6)
$SC_{(t-1)}$	0.2845**	0.2799**	0.2711**	0.2836**	0.2848**	0.2709**
	(0.1228)	(0.1228)	(0.1222)	(0.1232)	(0.1212)	(0.1207)
$CBITS_{(t-1)}$	0.0238***	0.0231***	0.0237***	0.0237***	0.0230***	0.0227***
	(0.0045)	(0.0045)	(0.0044)	(0.0045)	(0.0044)	(0.0043)
$GDPpc_{(t-1)}$	0.0493***	0.0497***	0.0488***	0.0494***	0.0486***	0.0484***
	(0.0107)	(0.0106)	(0.0105)	(0.0107)	(0.0106)	(0.0104)
$EduSec_{(t-1)}$	0.0080***	0.0069***	0.0081***	0.0080***	0.0078***	0.0073***
	(0.0022)	(0.0025)	(0.0022)	(0.0022)	(0.0022)	(0.0026)
$LNPop_{(t-1)}$	-0.0711*	-0.0769*	-0.0527	-0.0719*	-0.0423	-0.0286
	(0.0408)	(0.0414)	(0.0409)	(0.0408)	(0.0471)	(0.0491)
legor_uk	0.6402***	0.7456***	0.6352***	0.6473***	0.4787***	0.5365***
	(0.2165)	(0.2373)	(0.2173)	(0.2180)	(0.1638)	(0.1897)
legor_fr	0.2435	0.3338	0.2324	0.2526	0.1114	0.1541
	(0.1917)	(0.2078)	(0.1917)	(0.1920)	(0.1027)	(0.1405)
legor_ge	0.1417	0.2060	0.1664	0.1435	0.0015	0.0661
	(0.2188)	(0.2259)	(0.2157)	(0.2183)	(0.1776)	(0.2001)
legor_so	0.0769	0.2471	-0.0336	0.0785		
	(0.2097)	(0.2576)	(0.2178)	(0.2094)		
legor_sc					-0.0618	-0.0551
					(0.2152)	(0.2791)
Ethnic		-0.3582				-0.2005
		(0.3126)				(0.3185)
dist_coast			-0.3274**			-0.2990**
			(0.1510)			(0.1448)
NatRes_1				-0.0010		0.0005
				(0.0051)		(0.0054)
Trade_1					0.0020	0.0019
					(0.0015)	(0.0015)
Constant	0.4858	0.6555	0.7426	0.4980	0.6160	2.1525***
	(0.4617)	(0.5008)	(0.4938)	(0.4730)	(0.4450)	(0.6347)
Observations	792	792	792	792	792	792
# of country	132	132	132	132	132	132
Year FE	YES	YES	YES	YES	YES	YES
AR(1) Test	0.000	0.001	0.001	0.000	0.000	0.000
AR(2) Test	0.830	0.861	0.871	0.834	0.860	0.911
Sargan (P-value)	0.208	0.212	0.228	0.207	0.212	0.233
Instruments	23	24	24	24	24	27

Notes: The dependent variable is Socioeconomic Conditions provided by the International Country Risk Guide (ICRG). The variable of interest, $CBITS_{(t-1)}$ is the cumulative number of BITs signed by a country at time (t-1). The legal origin variables are: legor_uk which refers to English legal origin, *legor_fr* is the French legal origin, *legor_so* is the Socialist legal origin and *legor_ge* is the German legal origin. $NatRes_{(t-1)}$ refers to Natural Resources and $Openness_{(t-1)}$ is Openness to trade. The variable *dist_coast* refers to the coastal distance. The variable *Ethnic* refers to Ethnolinguistic Fragmentation. Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 1. 6 Effect of Decomposed CBITs on Socioeconomic Conditions, 5-year data, Full Sample

$SC_{(t)}$	Syst. GMM, Full Sample					
	(1)	(2)	(3)	(4)	(5)	(6)
$SC_{(t-1)}$	0.3792***	0.3745***	0.3683***	0.3782***	0.3770***	0.3649***
	(0.1144)	(0.1143)	(0.1138)	(0.1148)	(0.1139)	(0.1136)
$CBITS^{NN}_{(t-1)}$	0.0571***	0.0566***	0.0562***	0.0569***	0.0562***	0.0552***
	(0.0142)	(0.0141)	(0.0139)	(0.0142)	(0.0142)	(0.0139)
$CBITS^{NS}_{(t-1)}$	0.0029	0.0022	0.0028	0.0026	0.0028	0.0025
	(0.0056)	(0.0056)	(0.0055)	(0.0056)	(0.0055)	(0.0055)
$CBITS^{SN}_{(t-1)}$	0.0415***	0.0395**	0.0432***	0.0408**	0.0395**	0.0403**
	(0.0159)	(0.0159)	(0.0159)	(0.0163)	(0.0158)	(0.0162)
$CBITS^{SS}_{(t-1)}$	0.0196	0.0200	0.0190	0.0200	0.0195	0.0191
	(0.0126)	(0.0127)	(0.0125)	(0.0128)	(0.0120)	(0.0122)
$GDPpc_{(t-1)}$	0.0510***	0.0514***	0.0506***	0.0512***	0.0504***	0.0502***
	(0.0113)	(0.0112)	(0.0111)	(0.0113)	(0.0112)	(0.0110)
$EduSec_{(t-1)}$	0.0057**	0.0048*	0.0057**	0.0057**	0.0057**	0.0052**
	(0.0023)	(0.0025)	(0.0023)	(0.0023)	(0.0023)	(0.0025)
$LNPop_{(t-1)}$	-0.0566	-0.0613*	-0.0398	-0.0575	-0.0357	-0.0226
	(0.0358)	(0.0362)	(0.0359)	(0.0358)	(0.0422)	(0.0437)
legor_uk	0.7025***	0.7927***	0.6947***	0.4926**	0.4240**	0.4909**
	(0.2250)	(0.2391)	(0.2256)	(0.1981)	(0.1836)	(0.2042)
legor_fr	0.3657*	0.4438**	0.3529*	0.1589	0.1073	0.1625
	(0.2070)	(0.2154)	(0.2063)	(0.1342)	(0.1203)	(0.1509)
legor_ge	0.1452	0.2006	0.1752	-0.0696	-0.1204	-0.0354
	(0.2261)	(0.2320)	(0.2227)	(0.2015)	(0.2041)	(0.2162)
legor_so	0.2201	0.3589	0.1114			
	(0.2396)	(0.2664)	(0.2478)			
legor_sc				-0.2188	-0.2058	-0.1762
				(0.2407)	(0.2426)	(0.2869)
Ethnic		-0.3021				-0.1530
		(0.2753)				(0.2803)
dist_coast			-0.3155**			-0.2911**
			(0.1402)			(0.1334)
$NatRes_{(t-1)}$				-0.0012		0.0002
				(0.0046)		(0.0049)
$Openness_{(t-1)}$					0.0014	0.0014
					(0.0013)	(0.0013)
Constant	0.1040	0.2494	0.3385	0.3356	0.3719	0.6288
	(0.4422)	(0.4791)	(0.4744)	(0.4242)	(0.4276)	(0.5386)
Observations	792	792	792	792	792	792
# of country	132	132	132	132	132	132
Year FE	YES	YES	YES	YES	YES	YES
AR(1) Test	0.000	0.000	0.000	0.000	0.000	0.000
AR(2) Test	0.522	0.541	0.547	0.525	0.544	0.576
Sargan (P-value)	0.495	0.499	0.514	0.495	0.497	0.516
Instruments	28	29	29	29	29	32

Notes: The dependent variable is Socioeconomic Conditions provided by the International Country Risk Guide (ICRG). The variable of interest,$CBITS_{(t-1)}$ is now split into 4 components: $CBITS^{NN}_{(t-1)}$ captures the effect of North on North, $CBITS^{NS}_{(t-1)}$captures the effect of South on North, $CBITS^{SN}_{(t-1)}$ captures the effects of North on South,$CBITS^{SS}_{(t-1)}$ captures of South on South. The legal origin variables are: legor_uk which refers to English legal origin, *legor_fr* is the French legal origin, *legor_so* is the Socialist legal origin and *legor_ge* is the German legal origin. $NatRes_{(t-1)}$refers to Natural Resources and $Openness_{(t-1)}$ is Openness to trade. The variable *dist_coast* refers to the coastal distance. The variable*Ethnic* refers to Ethnolinguistic Fragmentation.
Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 1. 7 Effect of Decomposed CBITs on Socioeconomic Conditions, 5-year data, Southern Countries

$SC_{(t)}$	Syst. GMM, Southern Countries					
	(1)	(2)	(3)	(4)	(5)	(6)
$SC_{(t-1)}$	0.6189***	0.6182***	0.6102***	0.6197***	0.6136***	0.6077***
	(0.1516)	(0.1514)	(0.1502)	(0.1541)	(0.1492)	(0.1505)
$CBITS^{SN}_{(t-1)}$	0.0620***	0.0619***	0.0622***	0.0635***	0.0608***	0.0641***
	(0.0154)	(0.0155)	(0.0155)	(0.0164)	(0.0149)	(0.0161)
$CBITS^{SS}_{(t-1)}$	0.0004	0.0005	0.0000	-0.0001	0.0007	-0.0006
	(0.0124)	(0.0124)	(0.0122)	(0.0128)	(0.0117)	(0.0119)
$GDPpc_{(t-1)}$	0.0369**	0.0369**	0.0363**	0.0357**	0.0360**	0.0334**
	(0.0163)	(0.0163)	(0.0161)	(0.0171)	(0.0156)	(0.0161)
$EduSec_{(t-1)}$	0.0015	0.0015	0.0017	0.0015	0.0011	0.0016
	(0.0023)	(0.0025)	(0.0023)	(0.0023)	(0.0023)	(0.0025)
$LNPop_{(t-1)}$	-0.0518	-0.0517	-0.0414	-0.0520	-0.0334	-0.0196
	(0.0354)	(0.0357)	(0.0346)	(0.0358)	(0.0381)	(0.0391)
legor_uk	0.1465	0.1485	0.2058	0.1294	0.5698**	0.1247
	(0.1825)	(0.1921)	(0.1895)	(0.1948)	(0.2400)	(0.1973)
legor_fr	-0.0121	-0.0101	0.0520	-0.0380	0.4505**	0.0050
	(0.1095)	(0.1201)	(0.1169)	(0.1258)	(0.2152)	(0.1402)
legor_ge	-0.4282*	-0.4250*	-0.2298	-0.4486**		-0.2668
	(0.2223)	(0.2304)	(0.2773)	(0.2280)		(0.2955)
legor_so					0.5111**	
					(0.2368)	
Ethnic		0.0096				0.1330
		(0.2338)				(0.2464)
dist_coast			-0.1955			-0.2317*
			(0.1466)			(0.1376)
$NatRes_{(t-1)}$				0.0021		0.0026
				(0.0044)		(0.0046)
$Openness_{(t-1)}$					0.0018	0.0018
					(0.0012)	(0.0013)
Constant	0.8883	0.8833	0.9727*	0.8855	-0.4356	0.0127
	(0.5624)	(0.5823)	(0.5676)	(0.5689)	(0.5165)	(0.5082)
Observations	564	564	564	564	564	564
# of Country	94	94	94	94	94	94
Year FE	YES	YES	YES	YES	YES	YES
AR(1) Test	0.000	0.000	0.000	0.000	0.000	0.000
AR(2) Test	0.137	0.137	0.138	0.138	0.144	0.146
Sargan (P-value)	0.610	0.609	0.617	0.604	0.615	0.615
Instruments	24	25	25	25	25	28

Notes:The dependent variable is Socioeconomic conditions provided by the International Country Risk Guide (ICRG). The variables of interest are now$CBITS^{SN}_{(t-1)}$ which captures the effects of North on South and $CBITS^{SS}_{(t-1)}$ which captures the effects of South on South. The legal origin variables are: legor_uk which refers to English legal origin, *legor_fr* is the French legal origin, *legor_so* is the Socialist legal origin and *legor_ge* is the German legal origin. $NatRes_{(t-1)}$refers to Natural Resources and $Openness_{(t-1)}$ is Openness to trade. The variable *dist_coast* refers to the coastal distance. The variable*Ethnic* refersto Ethnolinguistic Fragmentation.
Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

My analysis, in terms of the effects of decomposed BITs (South-North BITs and South-South BITs), shows no significant effects of South-South BITs on the socioeconomic conditions in Southern countries, whereas South-North BITs appear to have positive and highly significant effects (at the 1% level). The lack of significance of South-South BITs could be interpreted as the ineffectiveness of South-South investment cooperation in significantly improving the overall socioeconomic conditions of Southern countries. Therefore, South-North investment cooperation seems more beneficial for Southern countries than South-South ones. A plausible explanation might be found in the nature of the provisions embedded in South-South BITs, compared to the provisions of South-North BITs. This finding is consistent with Poulsen (2010), who noted that South-North BITs are more comprehensive than South-South BITs with respect to their scope. More importantly, Poulsen (2010) showed that South-South BITs and South-North BITs systematically differ in two provisions, *National Treatment* and *Transfer of Funds*.[19] He concluded that administrators in developing countries, in their pursuit of developmental objectives, tend to soften the rules more than their counterparts in developed countries. The relatively noncoercive nature of South-South BITs might explain the recent proliferation of such agreements among southern countries. In fact, according to interviews conducted in several developing countries, officials view BITs as merely a framework rather than a forceful treaty (Poulsen 2010, 126).[20] The differing

[19] The clauses of the *National Treatment* provision state that foreign investors and their investments are accorded treatment no less favorable than that which the host state accords to its own investors (Dolzer and Christopher 2012, 108). Furthermore, with respect to *Transfer of Funds*, these two authors note that all treaty schemes are negotiated against the backdrop of the host state's "monetary sovereignty." Accordingly, the host state has "the exclusive right to determine its own monetary unit, to give the unit legal meaning, to fix the exchange rate and to regulate, restrict or prohibit the conversion and transfer of foreign exchange" (Dolzer and Christopher 2012, 213).
20 See *Northwestern Journal of International Law and Business* 30 (Winter 2010).

interpretations attributed to Northern and Southern foreign investors with respect to these two provisions and possibly others might substantially explain the insignificance of South-South BITs. This finding is also corroborated by Demir (2016), who found that aggregate South-South FDI flows may have a harmful effect on the institutional development of host countries, whereas North-South FDI flows have no significant effect.

1.5 Potential Mechanisms

The empirical analysis suggests that investment treaties have improved the socioeconomic conditions of Southern countries. But how are socioeconomic conditions defined in the ICRG's methodology? The guide's authors refer to the socioeconomic pressure faced by governments that could prevent them from reaching their developmental goals. The authors identify three subcomponents of socioeconomic pressure, namely unemployment, poverty, and consumer confidence. To make sense of these findings, one needs to consider the potential effects that FDI generated by BITs might have on each of these subcomponents. In fact, consistent with some strands of economic theory, some economists believe that FDIs have positive and significant effects on employment, poverty reduction, and economic growth.

In the same vein, many developing and transitional economies view FDI as a means to attract capital, technology, marketing expertise, and management skills (Smarzynska 2004). Some authors believe that the effect of FDI on the labor market is most effective when FDI is directed to a labor-intensive sector. Studies such as that by Aitken and Harrison (1999) show that, as a result of FDI inflows, recipient countries have witnessed more competition in their domestic industries. In Africa and in countries such as Venezuela and the Czech Republic, the authors demonstrated that foreign-owned firms

do better than their domestic counterparts. On empirical grounds, evidence of the spillover effect of FDI is not as clear-cut as stated by previous literature on the subject. Smarzynska (2004) argues that the spillover might occur vertically rather than horizontally, through a process of "backward linkage" in which domestic firms and their multinational counterparts collaborate in producing goods and services.

Studies of the effects of FDI on poverty are rare. The very few papers that have addressed this issue are not conclusive or convincing in their findings. In fact, poverty reduction should be a logical result of the economic growth and increased job opportunities generated by FDI, if the wealth generated by FDI indeed reaches the poor. Aaron (1999) argues that there is no direct link between FDI and poverty reduction, although one can imagine an indirect relationship through economic growth. Tambuman (2005) provides a good summary of the three channels through which FDI could lead to poverty reduction: (1) labor-intensive economic growth; (2) transfers of new technology, knowledge, and other intangible assets; and (3) allocation of tax revenue paid by foreign firms. With respect to the first channel, Tambuman notes that FDI might reduce poverty if it were directed toward labor-intensive activities that generated jobs. Following the second channel, transfers of intangible assets could strengthen local skills, which in turn would result in job creation and increased productivity, with the ultimate goal being poverty reduction. The third channel projects that tax revenues collected by the host government from foreign firms might help generate the resources needed to pay for social assistance programs.

1.6 Robustness Analysis

1.6.1 Robustness Check of the Null Effect of BITs

In this section, I explore the sensitivity of the present findings to additional robustness checks. First, the empirical results are based on a measure of BITs generated on the basis of the date of entry into force of the agreements. An alternative approach would be to use a measure of BITs based on the date of signature of the agreements. Note that a BIT signed in a given year can take from no time at all to eighteen years before coming into effect. In fact, a BIT signed in a given year takes on average two and a half years before becoming effective. For that reason, there exists a net discrepancy between the number of BITs signed and the number of BITs that have actually entered into force. I tested whether the effects of BITs on IQ are sensitive to the nature of BITs (signed or entered into force), and the results show no significant effects of signed but not yet effective BITs on IQ. These findings indicate that BITs have an effect on IQ only when they enter into force.

To ensure that a handful of cases don't drive the findings, I reestimated equation (4) for the Southern countries excluding outliers. During the period 1984–2012, China signed 139 BITs, which is the highest number among the Southern countries. Thus, I repeated the regression analysis excluding China and found similar results. The results still show a positive and significant effect of BITs on IQ in the Southern countries. Additionally, the findings still hold after dropping the bottom 1% of the distribution of BITs.

With respect to the lack of effect of BITs on other components of the IQ index such as corruption, law and order, government stability, quality of bureaucracy, and

investment profile, I tested the sensibility of these findings against alternative definitions of institutional quality. The data source closest to the ICRG data I used to obtain my primary results is the World Bank's World Development Indicators, which provide institutional quality data. As with the ICRG data, the World Bank reports on governance indicators along six dimensions.[21] I defined an institutional quality index by taking the average of these indicators and estimated the effects of BITs on this newly constructed IQ index and on each of its components using the SGMM[22]. The (unreported) results show no significant effects of BITs on IQ and its components. Next, I extended this robustness check of the lack of BIT effects on IQ by using other data such as that of POLITY IV,[23] the Freedom House,[24] and A. Kuncic and still found no significant effects.

Finally, recent data on international investment agreements (IIAs) have shown a declining trend in BIT signings. This reduction in the number of BITs signed can be explained by the fact that some investment-related provisions are now included in other agreements such as free trade agreements and other economic partnership agreements. Therefore, as a final robustness check, I controlled for FTAs signed by Southern countries, and the results are not significantly different.[25]

1.6.2 Robustness Check of the Positive Effects of BITs on Socioeconomic Conditions

One of the main findings of this article is that bilateral investment treaties have improved socioeconomic conditions in Southern countries. I have measured socioeconomic

[21] The Worldwide Governance Indicators provide information for 215 countries and territories starting from 1996, broken down into the following six dimensions: (1) voice and accountability, (2) political stability and absence of violence, (3) government effectiveness, (4) regulatory quality, (5) rule of law, and (6) control of corruption.
[22] SGMM refers to System of Generalized Method of Moments.
[23] POLITY IV provides annual information on the characteristics of political regimes, and transitions from one regime to another, during the period 1800–2013.
[24] The Freedom House provides reports on the degree of democratic freedoms in countries worldwide during the period 1800–2015.
[25] The results for controlling for free trade agreements are not reported in the present article.

conditions using ICRG indicators, which are based on opinion and thus are qualitative by nature. To the best of my knowledge, the other primary set of measures of socioeconomic conditions is that provided by the United Nations Development Program (UNDP). Of these UNDP indicators, the one most similar to the socioeconomic conditions defined by the ICRG is the Multidimensional Poverty Index (MPI).[26] But the MPI data are so irregular that they are not suitable for a time series analysis. For that reason, in the robustness check, I used a cross-section analysis to confirm the findings. Another indicator, which is less similar to the socioeconomic conditions of the ICRG than the MPI data but which does provide an assessment of the human development outcome a country has achieved in a given year, is the Human Development Index (HDI).[27] The HDI comprises three dimensions, namely life expectancy, knowledge captured by years of schooling, and standard of living. Both indicators, the HDI and the MPI, contrary to the ICRG indicators, are quantitative measures of socioeconomic conditions.

The cross-section analysis results using the MPI as a dependent variable are reported in table 8 below. The results are based on a sample of forty-three Southern countries for which MPI data are available. Most data are available for most countries in years 2006 and 2012. Consequently, these years have been retained in the cross-section analysis. Across all specifications in 2006 and 2012, as shown in columns 1–8 of table 8, the results show that BITs have reduced the MPI, meaning that cumulative bilateral

[26] According to the Human Development Report 2016, MPI = H*A where $H = {}^{q}/_{n}$, q is the number of people multidimensionally poor and n is the total population; $A = {}^{\sum_{i=1}^{q} Ci}/_{q}$ is the intensity of poverty and Ci is the deprivation score of the *i*th poor person.

[27] The Human Development Report defines HDI as the geometric mean of three dimension indexes, $HDI = (I_Health * I_Education * I_Income)^{\frac{1}{3}}$, where $Dimension\ Index = \frac{Actual\ value - Minimum\ Value}{Maximum\ Value - Minimum\ Value}$.

investment treaties have improved the socioeconomic conditions of households in Southern countries by reducing the multidimensional poverty indicator. Note also that the key explanatory variables such as per capita GDP and education all show the expected signs. Both education and per capita GDP have significant and negative effect on the dependent variable MPI. These results are consistent with our main finding that bilateral investment treaties have improved socioeconomic conditions in Southern countries. On the other hand, we are unable to confirm the same finding using South-North and South-South analysis.

I conducted a similar exercise using the HDI as the dependent variable. The cross-section results in years 2006 and 2012 reported in Table 8 below show that cumulative bilateral investment treaties have a positive and significant effect on human development indicators, meaning that BITs have improved the socioeconomic conditions of households in Southern countries. The positive signs uncovered here for the effects of BITs on HDIs, as opposed to the negative signs founds for the effects of BITs on MPIs, are the expected ones, given that HDIs capture the development outcome achieved by a country. Also, the key independent variables, education and per capita GDP, continue to exhibit the expected signs. Interestingly, the South-North and South-South analysis of the effect of BITs on the HDI reported in table 9 reveals that South-North investment treaties have a positive and significant effect on human development. These results confirm one of the main findings of this article, that South-North investment cooperation is more beneficial to Southern countries than other configurations of BITs in terms of improving socioeconomic conditions.

Table 1. 8 Effects of cumulative BITs on Multidimensional Poverty Index

	Cross-Section, Year 2006				Cross-Section, Year 2012			
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CBITs	-0.0014***	-0.0018***	-0.0017***	-0.0016***	-0.0007*	-0.0010**	-0.0010**	-0.0010**
	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0004)	(0.0004)	(0.0004)	(0.0004)
LNpcGDP	-0.0848***	-0.0886***	-0.0907***	-0.0886***	-0.0620***	-0.0678***	-0.0696***	-0.0695***
	(0.0182)	(0.0169)	(0.0178)	(0.0194)	(0.0197)	(0.0204)	(0.0212)	(0.0224)
EduSec	-0.0033***	-0.0028***	-0.0027***	-0.0028***	-0.0037***	-0.0034***	-0.0033***	-0.0033***
	(0.0006)	(0.0005)	(0.0006)	(0.0006)	(0.0009)	(0.0009)	(0.0009)	(0.0010)
Openness		-0.0008***	-0.0010***	-0.0011***		-0.0005*	-0.0006*	-0.0006
		(0.0003)	(0.0003)	(0.0004)		(0.0003)	(0.0004)	(0.0004)
Inflation	-0.0001***	-0.0001***	-0.0001**	-0.0001**	-0.0018	-0.0019	-0.0017	-0.0017
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0014)	(0.0014)	(0.0014)	(0.0014)
Govt_Exp			0.0039	0.0043			0.0015	0.0015
			(0.0029)	(0.0027)			(0.0032)	(0.0032)
Credit	0.0008	0.0011*	0.0008	0.0008	0.0006	0.0008	0.0007	0.0007
	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)
Ext_Debt				0.0002				0.0000
				(0.0005)				(0.0005)
Constant	1.0244***	1.0890***	1.0649***	1.0467***	0.8879***	0.9581***	0.9535***	0.9531***
	(0.1252)	(0.1189)	(0.1198)	(0.1304)	(0.1187)	(0.1327)	(0.1327)	(0.1370)
Observations	43	43	43	43	43	43	43	43
R-squared	0.8319	0.8460	0.8526	0.8542	0.8255	0.8333	0.8348	0.8348

Note: The dependent variable is the Multidimensional Poverty Index (MPI) captures multiple deprivations at the household level along three dimensions, which are education, health and standard of living. It is based on household surveys data. CBITs refers to the cumulative number of BITs signed. Openness is openness to trade defined as the sum of import and export in percentage of GDP. Inflation is the annual variation of consumer price index (CPI). Credit is the domestic credit to private sector from banks in percentage of GDP. Govt_Exp refers to general government final consumption expenditure in percentage of GDP. The variable Ext_Debt is external debt stock in percentage of GDP.
Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 1. 9 Effects of cumulative BITs on Human Development Index, HDI

	Cross-Section, Year 2006				Cross-Section, Year 2012			
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CBITs	0.0006**	0.0007**	0.0006**	0.0005**	0.0004*	0.0005**	0.0006**	0.0005**
	(0.0003)	(0.0004)	(0.0004)	(0.0004)	(0.0002)	(0.0003)	(0.0003)	(0.0003)
LNpcGDP	0.0710***	0.0713***	0.0726***	0.0713***	0.0744***	0.0763***	0.0785***	0.0812***
	(0.0100)	(0.0101)	(0.0109)	(0.0122)	(0.0110)	(0.0112)	(0.0116)	(0.0115)
EduSec	0.0022***	0.0021***	0.0021***	0.0021***	0.0019***	0.0018***	0.0017***	0.0015**
	(0.0004)	(0.0004)	(0.0004)	(0.0005)	(0.0006)	(0.0006)	(0.0006)	(0.0006)
Openness		0.0001	0.0002	0.0003		0.0002	0.0003	0.0002
		(0.0003)	(0.0003)	(0.0003)		(0.0002)	(0.0002)	(0.0002)
Inflation	-0.0000***	-0.0000***	-0.0001***	-0.0001***	0.0010	0.0010	0.0007	0.0008
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0007)	(0.0007)	(0.0006)	(0.0006)
Govt_Exp			-0.0024	-0.0026			-0.0019	-0.0020
			(0.0016)	(0.0017)			(0.0014)	(0.0014)
Credit	-0.0000	-0.0000	0.0001	0.0001	0.0000	-0.0001	0.0000	0.0001
	(0.0004)	(0.0005)	(0.0005)	(0.0005)	(0.0004)	(0.0004)	(0.0004)	(0.0004)
Ext_Debt				-0.0002				0.0003**
				(0.0003)				(0.0002)
Constant	-0.1071*	-0.1124*	-0.0976	-0.0859	-0.1102*	-0.1340**	-0.1285**	-0.1380**
	(0.0613)	(0.0644)	(0.0705)	(0.0801)	(0.0584)	(0.0654)	(0.0632)	(0.0635)
Observations	43	43	43	43	43	43	43	43
R-squared	0.9205	0.9206	0.9254	0.9267	0.9206	0.9222	0.9260	0.9291

Note: The dependent variable is the Human Development Index (HDI) capturing the human development achieved by a country along three dimensions, which are education, heath and standard of living. CBITs refers to the cumulative number of BITs signed. Openness is openness to trade defined as the sum of import and export in percentage of GDP. Inflation is the annual variation of consumer price index (CPI). Credit is the domestic credit to private sector from banks in percentage of GDP. Govt_Exp refers to general government final consumption expenditure in percentage of GDP. The variable Ext_Debt is external debt stock in percentage of GDP. Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 1. 10 Effects of South-North and South-South BITs on Human Development Index, HDI

	Cross-Section, Year 2006				Cross-Section, Year 2012			
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$CBITs^{SN}$	0.0026**	0.0027**	0.0026**	0.0024**	0.0042***	0.0042***	0.0044***	0.0043***
	(0.0015)	(0.0015)	(0.0016)	(0.0016)	(0.0011)	(0.0011)	(0.0013)	(0.0016)
$CBITs^{SS}$	-0.0001	-0.0001	-0.0002	-0.0001	-0.0009**	-0.0008	-0.0009*	-0.0009
	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0004)	(0.0005)	(0.0005)	(0.0006)
LNpcGDP	0.0703***	0.0708***	0.0720***	0.0712***	0.0719***	0.0731***	0.0755***	0.0758***
	(0.0099)	(0.0101)	(0.0109)	(0.0122)	(0.0108)	(0.0111)	(0.0114)	(0.0114)
EduSec	0.0020***	0.0019***	0.0019***	0.0019***	0.0015**	0.0014**	0.0013**	0.0013**
	(0.0004)	(0.0005)	(0.0005)	(0.0006)	(0.0005)	(0.0006)	(0.0006)	(0.0006)
Openness		0.0001	0.0002	0.0002		0.0001	0.0002	0.0002
		(0.0003)	(0.0003)	(0.0003)		(0.0002)	(0.0002)	(0.0002)
Inflation	-0.0001***	-0.0001***	-0.0001***	-0.0001***	0.0016**	0.0015**	0.0013*	0.0013*
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0007)	(0.0007)	(0.0007)	(0.0007)
Govt_Exp			-0.0023	-0.0025			-0.0021*	-0.0021*
			(0.0016)	(0.0017)			(0.0011)	(0.0011)
Credit	-0.0001	-0.0001	0.0001	0.0001	-0.0001	-0.0001	-0.0000	-0.0000
	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0004)	(0.0004)	(0.0004)	(0.0004)
Ext_Debt				-0.0001				0.0000
				(0.0003)				(0.0002)
Constant	-0.0971	-0.1042	-0.0900	-0.0833	-0.0863	-0.0999	-0.0920	-0.0936
	(0.0600)	(0.0633)	(0.0687)	(0.0799)	(0.0574)	(0.0646)	(0.0616)	(0.0633)
Observations	43	43	43	43	43	43	43	43
R-squared	0.9247	0.9250	0.9296	0.9301	0.9362	0.9366	0.9417	0.9417

Note: The dependent variable is the Human Development Index (HDI) capturing the human development achieved by a country along three dimensions, which are education, health and standard of living. $CBITs^{SN}$ refers to the cumulative number of BITs signed between a Southern country with Northern countries and $CBITs^{SS}$ is the cumulative number of BITs signed by a Southern country with other Southern countries . Openness is openness to trade defined as the sum of import and export in percentage of GDP. Inflation is the annual variation of consumer price index (CPI). Credit is the domestic credit to private sector from banks in percentage of GDP. Govt_Exp refers to general government final consumption expenditure in percentage of GDP. The variable Ext_Debt is external debt stock in percentage of GDP.
Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

1.7 Conclusion

A substantial body of literature in international relations and in legal studies has focused on the possibility that states might change their behavior subsequent to making international commitments. Most of the topics investigated in this research are related to environmental issues, and the studies have not been able to reach consensual conclusions (Downs et al. 1996). Only a few of these research papers have investigated this question in relation to economic matters (Beth 2000). The present analysis, which is based on a panel data of 132 countries during the period 1984–2012, addresses econometric issues such as omitted variables and the endogeneity of the variable of interest—BITs—that may have biased findings in previous studies.

The results suggest that investment treaties have no significant effect on institutional quality over the full sample; however, the analysis conducted at the subsample level revealed that BITs have a positive and significant effect on the institutions of Southern countries. A closer look at the components of the institutional quality index revealed that the positive and significant results are essentially due to the effect that BITs have on the socioeconomic conditions of Southern countries. With respect to the other components of the IQ index (corruption, government stability, investment profile, law and order), no evidence of a significant effect of BITs is found. This dearth of significant effect is robust to using alternative definitions of institutions and consistent with previous findings. Finally, the results also show that South-North BITs have a positive and significant effect on institutions via their socioeconomic dimensions in Southern countries, while South-South BITs appear insignificant. This finding indicates that Southern countries might be better off signing investment

agreements with Northern countries than with countries similar to them in the South. The Bretton Woods institutions (the Word Bank and the IMF), which advocate good institutional quality, should encourage Southern countries to diversify the set of foreign firms operating in their territory by signing more South-North investment cooperation agreements. This will help build a much broader strategic framework through which they can enhance their institutional quality. One last point to mention is the heterogeneity of BITs. In this paper I made the implicit assumption of the homogeneity of BITs. An avenue for future research is to distinguish among BITs by constructing BITs indexes based on the provisions embedded in each BIT.

Appendix 1.A: System GMM

The dynamic System GMM estimation results include the lag institutional quality (IQ) and BITs variables in the GMM style option while the remaining explanatory variables are included in the IV style option. Given the short time period (T=7) of the dataset, the results are mostly based on lag(2,5) using the collapse option which prevents from instruments proliferation.

Lag(m,n) with m>n indicates that lagged levels dated from t-n to t-m will be used as instruments for the transformed equation, and the first differenced dated t-n+1 will be used as instruments for the levels equation.

Appendix 1.B Institutional Quality Data

The International Country Risk Guide (ICRG) data is compiled and provided by the PRS group. They collect political, financial and economic data on a monthly basis from 140 countries. These data are then converted into risk by assigning points to factors. The notation system is such that a country with lowest risk has the highest risk points and the one with the highest risk has the lowest risk points. The political dimension has 12 components while each of the other two dimensions (financial and economic) has 5 components. The following table presents a group summary of the 12 components of the political risk dimension.

Table 1. 11 The Political Risk Component

Sequence	Component	Points (max.)	Subcomponents
A	Government Stability	12	(i) Government Unity (ii) Legislative Strength (iii) Popular Support
B	Socioeconomic Conditions	12	(i) Unemployment (ii) Consumer Confidence (iii) Poverty
C	Investment Profile	12	(i) Contract Viability (ii) Profits Repatriation (iii)Payments Delays
D	Internal Conflict	12	(I) Civil War (ii) Political Violence (iii) Civil Disorder
E	External Conflict	12	(i) War (ii) Cross-Border Conflict (iii) Foreign Pressures
F	Corruption	6	
G	Military in Politics	6	
H	Religious Tensions	6	
I	Law and Order	6	(i) Law (ii) Order
J	Ethnic Tensions	6	
K	Democratic Accountability	6	
L	Bureaucracy Quality	4	
Total		100	

Source: PRS Group

Table 1. 12 Definition and Sources of the variables

Variables	Definition	Sources
Institutional quality (Inst.)	Average of the five components of the political risks: corruption, law and order, investment profile, quality of bureaucracy, and government stability. As constructed, this variable takes values from 0 to 10.	ICRG
BITs	Number of Bilateral Investments treaties signed between countries, either between developed and developing countries, or between developing countries	UNCTAD
GDP per capita (constant 2005 US$)	GDP at purchaser's prices defined as the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It's evaluated in constant 2005 U.S.	WDI
Education	Education is captured by the gross enrollment ratio, which is the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education shown.	WDI
Trade (% Of GDP)	The sum of Imports and exports of goods and services. It represents the value of all goods and other market services received and exported to the rest of the world.	WDI
Natural Resources (% Of GDP)	Natural resources refer to rents from oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents.	WDI
Population	Population refers to the de facto definition of population, which counts all residents regardless of legal status or citizenship	WDI
Coastal distance (dist_coast)	Average distance to nearest ice-free coast (1000 km)	Nunn and Puga (2012)
Legal Origin	legor_uk=1 if legal origin is British; legor_fr=1 if legal origin is French; legor_so=1 if legal origin is socialist;legor_ge=1 if legal origin is German; legor_sc=1 if legal origin is Scandinavian	La Porta Rafael, et al (1999)

Table 1. 13 Pairwise correlation matrix

	$Inst_{(t)}$	$BITs_{(t-1)}$	$GDPpc_{(t-1)}$	$EduSec_{(t-1)}$	$LNPop_{(t-1)}$	dist_coast	$NatRes_{(t-1)}$	$Openness_{(t-1)}$	legor_uk	legor_fr	legor_ge	legor_sc	legor_so	Ethnic
$Inst_{(t)}$	1													
$BITs_{(t-1)}$	0.3067	1												
$GDPpc_{(t-1)}$	0.7591	0.2125	1											
$EduSec_{(t-1)}$	0.6445	0.3432	0.5939	1										
$LNPop_{(t-1)}$	-0.1196	0.2655	-0.1904	-0.1031	1									
dist_coast	-0.1901	0.0075	-0.2123	-0.1079	0.2742	1								
$NatRes_{(t-1)}$	-0.2501	-0.1564	-0.0902	-0.177	-0.1076	0.1415	1							
$Openness_{(t-1)}$	0.2499	0.0096	0.1952	0.1727	-0.4653	-0.1407	0.0626	1						
legor_uk	0.113	-0.1722	0.0328	-0.1183	-0.0476	-0.038	0.0229	0.1572	1					
legor_fr	-0.3797	-0.0176	-0.2583	-0.2027	0.0539	0.0263	0.1724	-0.1385	-0.6836	1				
legor_ge	0.2247	0.2287	0.0952	0.2900	0.0622	0.0836	-0.2185	0.0256	-0.2399	-0.4212	1			
legor_sc	0.3462	0.0268	0.4481	0.2757	-0.1408	-0.095	-0.0963	-0.03	-0.1238	-0.2174	-0.0763	1		
legor_so	-0.0356	0.0506	-0.0412	0.0499	0.0064	-0.0684	-0.0528	-0.0519	-0.0545	-0.0957	-0.0336	-0.0173	1	
Ethnic	-0.3909	-0.2472	-0.3108	-0.5052	-0.0744	0.2279	0.3152	-0.0624	0.1783	0.1058	-0.2529	-0.2749	0.0509	1

Table 1. 14 Eigen values of the PCA

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	5.658	4.291	0.472	0.472
Comp2	1.367	0.197	0.114	0.586
Comp3	1.171	0.360	0.098	0.683
Comp4	0.811	0.195	0.068	0.751
Comp5	0.616	0.089	0.051	0.802
Comp6	0.526	0.042	0.044	0.846
Comp7	0.485	0.081	0.040	0.886
Comp8	0.403	0.103	0.034	0.920
Comp9	0.300	0.048	0.025	0.945
Comp10	0.253	0.038	0.021	0.966
Comp11	0.215	0.021	0.018	0.984
Comp12	0.194	.	0.016	1.000

Table 1. 15 Eigen vectors of the PCA

Variable	Comp1	Comp2	Comp3	Comp4	Comp5	Comp6	Unexplained
cor	0.288	-0.394	0.134	-0.228	-0.113	0.293	0.202
lo	0.352	-0.008	-0.016	-0.298	-0.155	0.176	0.197
ip	0.275	0.128	-0.519	0.281	0.292	-0.119	0.110
gs	0.182	0.537	-0.435	0.002	0.018	0.456	0.087
bq	0.337	-0.325	-0.130	-0.021	-0.068	0.056	0.190
sc	0.292	-0.254	-0.304	-0.264	0.233	-0.534	0.080

Table 1. 16 Annual data estimation results, Full sample, 1984-2012.

$Inst_{(t)}$	FE		Diff GMM		Syst GMM	
	(1)	(2)	(3)	(4)	(5)	(6)
$Inst_{(t-1)}$	0.8446***	0.8452***	0.8599***	0.8576***	0.8476***	0.8473***
	(0.0099)	(0.0101)	(0.0322)	(0.0321)	(0.0273)	(0.0272)
$CBITs_{(t-1)}$	-0.0006	-0.0006	-0.0010	-0.0014	-0.0011	-0.0009
	(0.0005)	(0.0005)	(0.0029)	(0.0030)	(0.0011)	(0.0010)
$GDPpc_{(t-1)}$	0.0058**	0.0056*	0.0034	0.0021	0.0137***	0.0126***
	(0.0028)	(0.0029)	(0.0088)	(0.0094)	(0.0043)	(0.0037)
$EduSec_{(t-1)}$	0.0002	0.0002	-0.0007	-0.0015	0.0019	0.0016
	(0.0006)	(0.0006)	(0.0054)	(0.0055)	(0.0016)	(0.0016)
$LNPop_{(t-1)}$	-0.0202	-0.0224	0.0124	0.0158	0.0092	0.0101
	(0.0647)	(0.0642)	(0.0759)	(0.0759)	(0.0097)	(0.0093)
legor_uk					0.0899	0.0900
					(0.0717)	(0.0740)
legor_fr					0.0239	0.0264
					(0.0494)	(0.0576)
legor_ge					0.0942**	0.0862*
					(0.0393)	(0.0519)
legor_sc					-0.0654	-0.0290
					(0.1252)	(0.1200)
Ethnic		0.1808***		-0.0274		-0.0226
		(0.0333)		(0.0486)		(0.0831)
dist_coast						-0.0014
						(0.0287)
$NatRes_{(t-1)}$		0.0011		-0.0013		-0.0015
		(0.0011)		(0.0042)		(0.0010)
$Openness_{(t-1)}$		0.0003		0.0010		0.0004
		(0.0004)		(0.0013)		(0.0002)
Constant	0.6597**	0.5340*			0.5730***	0.6039***
	(0.3208)	(0.3179)			(0.1676)	(0.1902)
Observations	3,696	3,696	3,564	3,564	3,696	3,696
R-squared	0.8178	0.8179				
# of country	132	132	132	132	132	132
Year FE	YES	YES	YES	YES	YES	YES
AR(1) Test			0.000	0.000	0.000	0.000
AR(2) Test			0.000	0.000	0.000	0.000
Sargan (P-value)			0.650	0.606	0.808	0.808
Instruments			36	39	45	49

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Notes
The dependent variable is the Institutional Quality Index constructed as the simple average of six of the political risk components providedby the International Country Risk Guide (ICRG).

Table 1. 17 Estimation results, Full sample, 1984-2012, 5 Years data

$Inst_{(t)}$	FE Full Sample		Diff GMM Full Sample		Syst. GMM Full Sample	
	(1)	(2)	(3)	(4)	(5)	(6)
$Inst_{(t-1)}$	0.3678***	0.3719***	0.2960**	0.3076**	0.3769***	0.3632***
	(0.0382)	(0.0385)	(0.1191)	(0.1227)	(0.1004)	(0.1079)
$CBITs_{(t-1)}$	-0.0015	-0.0013	0.0236	0.0251	-0.0013	-0.0005
	(0.0019)	(0.0020)	(0.0158)	(0.0156)	(0.0027)	(0.0027)
$GDPpc_{(t-1)}$	0.0141	0.0148*	0.0305	0.0285	0.0368***	0.0354***
	(0.0089)	(0.0087)	(0.0261)	(0.0253)	(0.0099)	(0.0093)
$EduSec_{(t-1)}$	0.0026	0.0030	0.0272**	0.0299**	0.0173***	0.0159***
	(0.0025)	(0.0024)	(0.0116)	(0.0119)	(0.0043)	(0.0050)
$LNPop_{(t-1)}$	-0.3530	-0.3689	0.8378	0.8597	0.0200	0.0412
	(0.3109)	(0.3123)	(0.7530)	(0.7475)	(0.0287)	(0.0338)
legor_uk					0.8211***	0.2606
					(0.1649)	(0.2222)
legor_fr					0.4577***	-0.0726
					(0.1229)	(0.2565)
legor_ge					0.5681***	0.0697
					(0.1206)	(0.2071)
legor_so						-0.5985**
						(0.2740)
Ethnic						0.2111
						(0.2821)
dist_coast						-0.1293
						(0.0931)
$NatRes_{(t-1)}$		0.0080*		0.0131		-0.0063
		(0.0046)		(0.0087)		(0.0042)
$Openness_{(t-1)}$		-0.0003		-0.0007		0.0017
		(0.0017)		(0.0028)		(0.0012)
legor_sc					0.3389	
					(0.2591)	
Constant	1.2807	1.0963			1.4283**	2.1034**
	(1.5523)	(1.5559)			(0.5843)	(0.8240)
Observations	660	660	528	528	660	660
R-squared	0.4378	0.4405				
# of country	132	132	132	132	132	132
Year FE	YES	YES	YES	YES	YES	YES
AR(1) Test			0.035	0.041	0.000	0.001
AR(2) Test			0.062	0.097	0.035	0.031
Sargan (P-value)			0.180	0.272	0.512	0.465
Instruments			13	15	22	26

Notes: The dependent variable is Institutional Qualityprovided by the International Country Risk Guide (ICRG).
The variable of interest,$CBITS_{(t-1)}$ is the cumulative number of BITs signed by a country up to year t-1.
The legal origin variables are: legor_uk which refers to English legal origin, *legor_fr* is theFrench legal origin, *legor_so* is the Socialist legal origin and *legor_ge* is the German legal origin. $NatRes_{(t-1)}$refers to Natural Resources and $Openness_{(t-1)}$ is Openness to trade. The variable *dist_coast* refers to the coastal distance.
The variable*Ethnic* refers to Ethnolinguistic Fragmentation.
Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 1. 18 Hausman test results

$Inst_{(t)}$	FE	RE		FE-RE	S.E.
	(1)	(2)		(3)	(4)
$Inst_{(t-1)}$	0.3290***	0.6596***	$Inst_{(t-1)}$	-0.331	0.0243
	(0.0375)	(0.0281)			
$CBITs_{(t-1)}$	-0.0025	-0.0001	$CBITs_{(t-1)}$	-0.002	0.0015
	(0.0018)	(0.0011)			
$GDPpc_{(t-1)}$	0.0013	0.0195***	$GDPpc_{(t-1)}$	-0.018	0.0076
	(0.0092)	(0.0030)			
$EduSec_{(t-1)}$	0.0007	0.0041***	$EduSec_{(t-1)}$	-0.003	0.0025
	(0.0021)	(0.0010)			
$LNPop_{(t-1)}$	-0.1843	0.0088	$LNPop_{(t-1)}$	-0.193	0.2435
	(0.3057)	(0.0160)			
Ethnic	-0.1211	-0.1124	Ethnic	-0.009	1.1316
	(0.1356)	(0.1151)			
$NatRes_{(t-1)}$	0.0034	-0.0029	$NatRes_{(t-1)}$	0.006	0.0044
	(0.0038)	(0.0021)			
$Openness_{(t-1)}$	0.0005	0.0011**	$Openness_{(t-1)}$	-0.001	0.0012
	(0.0016)	(0.0005)			
legor_uk		0.3828***	Year		
		(0.0636)	3	-0.001	.
legor_fr		0.1919***	4	0.113	0.0314
		(0.0505)	5	0.424	0.0711
legor_ge		0.3094***	6	0.479	0.1063
		(0.0700)	7	0.528	0.1402
legor_sc		0.2989**			
		(0.1242)			
dist_coast		-0.0798			
		(0.0533)			
Constant	2.4308	1.0651***			
	(1.5857)	(0.2014)			
Observations	792	792	chi2(13)= 197.38		
R-squared	0.3682		Prob>chi2 = 0.000		
# of countries	132	132			
Year FE	YES	YES			

Notes:The dependent variable is the Institutional Quality Index constructed as the simple average of six of the political risk components provided by the International Country Risk Guide (ICRG). Columns 1 and 2 give Fixed Effects and Random Effects estimation results, respectively. Column 3 gives the difference of columns 1 and 2; in column 4, the standard errors are provided. Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 1. 19 Effect of BITs on Socioeconomic Conditions, 5-year data (Southern Countries)

$SC_{(t)}$	Syst. GMM, Southern Countries					
	(1)	(2)	(3)	(4)	(5)	(6)
$SC_{(t-1)}$	0.5899***	0.5893***	0.5814***	0.5889***	0.5847***	0.5768***
	(0.1476)	(0.1470)	(0.1470)	(0.1483)	(0.1456)	(0.1459)
$CBITS_{(t-1)}$	0.0229***	0.0227***	0.0227***	0.0230***	0.0226***	0.0228***
	(0.0070)	(0.0071)	(0.0069)	(0.0070)	(0.0068)	(0.0070)
$GDPpc_{(t-1)}$	0.0376**	0.0378**	0.0372**	0.0372**	0.0367**	0.0353**
	(0.0164)	(0.0163)	(0.0162)	(0.0169)	(0.0157)	(0.0159)
$EduSec_{(t-1)}$	0.0036*	0.0034	0.0037*	0.0036*	0.0031	0.0035
	(0.0020)	(0.0023)	(0.0020)	(0.0019)	(0.0020)	(0.0023)
$LNPop_{(t-1)}$	-0.0411	-0.0416	-0.0316	-0.0410	-0.0219	-0.0106
	(0.0358)	(0.0363)	(0.0357)	(0.0360)	(0.0381)	(0.0398)
legor_uk	0.3123**	0.3030*	0.3672**	0.5582**	0.5520**	0.2794
	(0.1471)	(0.1620)	(0.1562)	(0.2406)	(0.2398)	(0.1711)
legor_fr	0.1582*	0.1474	0.2170**	0.4001**	0.4389**	0.1679
	(0.0814)	(0.0971)	(0.0889)	(0.2038)	(0.2119)	(0.1156)
legor_ge	-0.2442	-0.2601	-0.0650			-0.1297
	(0.1818)	(0.1917)	(0.2395)			(0.2623)
legor_so				0.2499	0.3358*	
				(0.1835)	(0.2030)	
Ethnic		-0.0526				0.0689
		(0.2411)				(0.2506)
dist_coast			-0.1752			-0.1904
			(0.1385)			(0.1274)
$NatRes_{(t-1)}$				0.0008		0.0013
				(0.0043)		(0.0045)
$Openness_{(t-1)}$					0.0018	0.0019
					(0.0012)	(0.0012)
Constant	0.8021	0.8464	0.8792	0.5539	0.5479	0.9050
	(0.5742)	(0.5794)	(0.5842)	(0.6174)	(0.6026)	(0.5813)
Observations	564	564	564	564	564	564
# of country	94	94	94	94	94	94
Year FE	YES	YES	YES	YES	YES	YES
AR(1) Test	0.000	0.000	0.000	0.000	0.000	0.000
AR(2) Test	0.147	0.147	0.148	0.147	0.155	0.158
Sargan (P-value)	0.300	0.301	0.306	0.297	0.306	0.307
Instruments	20	21	21	21	21	24

Notes: The dependent variable is Socioeconomic Conditions provided by the International Country Risk Guide (ICRG). The variable of interest, $CBITS_{(t-1)}$ is the cumulative number of BITs signed by a country at time (t-1). The legal origin variables are: legor_uk which refers to English legal origin, *legor_fr* is the French legal origin, *legor_so* is the Socialist legal origin and *legor_ge* is the German legal origin. $NatRes_{(t-1)}$ refers to Natural Resources and $Openness_{(t-1)}$ is Openness to trade. The variable *dist_coast* refers to the coastal distance. The variable *Ethnic* refers to Ethnolinguistic Fragmentation. Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 1. 20 Effect of BITS on other components , Southern Countries

Dep Var.	Syst. GMM, Southern Countries				
	CO	QB	GS	LO	IP
Lagged Dep Var.	0.3195**	0.7054***	0.1118	0.7290***	0.5588**
	(0.1339)	(0.0703)	(0.2492)	(0.1201)	(0.2834)
$CBITs_{(t-1)}$	0.0064	0.0003	-0.0129**	0.0027	-0.0052
	(0.0039)	(0.0034)	(0.0059)	(0.0044)	(0.0055)
$GDPpc_{(t-1)}$	0.0209	0.0148**	0.0217	0.0194*	0.0217
	(0.0132)	(0.0060)	(0.0146)	(0.0108)	(0.0167)
$EduSec_{(t-1)}$	-0.0012	0.0046*	0.0053	0.0004	0.0055
	(0.0026)	(0.0026)	(0.0034)	(0.0026)	(0.0037)
$LNPop_{(t-1)}$	-0.0028	0.0939**	0.0617	0.0044	-0.0096
	(0.0491)	(0.0383)	(0.0609)	(0.0366)	(0.0317)
legor_uk	-0.0324	0.3847*	-0.3874	-0.0119	1.4536**
	(0.1799)	(0.2037)	(0.2455)	(0.2847)	(0.5774)
legor_fr	-0.2390	-0.0249	-0.4158*	-0.1353	1.3103***
	(0.1811)	(0.1198)	(0.2155)	(0.3319)	(0.4369)
legor_ge	0.0539	0.0051	0.2649	0.2657	1.0529**
	(0.3849)	(0.4069)	(0.4464)	(0.2823)	(0.4654)
Ethnic	0.2688	-0.0437	-0.3144	-0.0922	-0.0242
	(0.3209)	(0.2424)	(0.2930)	(0.2221)	(0.2435)
dist_coast	-0.3205**	-0.2228*	0.1315	0.0342	0.0188
	(0.1626)	(0.1313)	(0.2862)	(0.1024)	(0.1235)
$NatRes_{(t-1)}$	-0.0092*	-0.0037	0.0112*	0.0027	-0.0005
	(0.0052)	(0.0037)	(0.0062)	(0.0045)	(0.0039)
$Openness_{(t-1)}$	0.0025	0.0036**	0.0020	0.0015	0.0021
	(0.0021)	(0.0016)	(0.0021)	(0.0013)	(0.0013)
Constant	2.2757***	1.4122***	4.2901***	0.9849	-0.1684
	(0.6689)	(0.3384)	(1.3800)	(0.8308)	(0.7779)
Observations	564	564	564	564	564
# of country	94	94	94	94	94
Year FE	YES	YES	YES	YES	YES
AR(1) Test	0.003	0.000	0.101	0.000	0.330
AR(2) Test	0.251	0.002	0.593	0.277	0.373
Sargan (P-value)	0.977	0.951	0.319	0.857	0.956
Instruments	26	26	26	26	26

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 1. 21List of countries in the sample with the total number of BITs, 1984-2012

Albania (41)	Dominican (12)	Korea (91)	Qatar (48)
Algeria (48)	Ecuador (27)	Kuwait (62)	Romania (83)
Angola (09)	Egypt (98)	Latvia (46)	Russia (73)
Argentina (58)	El Salvador (22)	Lebanon (52)	Saudi Arabia (22)
Armenia (39)	Estonia (28)	Libya (38)	Senegal (19)
Australia (23)	Ethiopia (30)	Lithuania (53)	Sierra Leone (02)
Austria (67)	Finland (80)	Luxembourg (90)	Singapore (34)
Azerbaijan (47)	France (84)	Madagascar (06)	Slovak (60)
Bahamas (01)	Gabon (12)	Malawi (06)	Slovenia (40)
Bahrain (31)	Gambia (14)	Malaysia (62)	South Africa (48)
Bangladesh (27)	Germany (102)	Mali (15)	Spain (89)
Belarus (60)	Ghana (26)	Malta (21)	Sri Lanka (18)
Belgium (90)	Greece (43)	Mexico (30)	Suriname (03)
Bolivia (23)	Guatemala (19)	Moldova (40)	Sweden (61)
Botswana (10)	Guinea (18)	Mongolia (43)	Switzerland (94)
Brazil (14)	Guinea-Bissau (02)	Morocco (64)	Syrian (41)
Brunei Darussalam (08)	Guyana (07)	Mozambique (24)	Tanzania (13)
Bulgaria (71)	Haiti (04)	Namibia (14)	Thailand (38)
Burkina Faso (13)	Honduras (12)	Netherlands (91)	Togo (02)
Cameroon (09)	Hong Kong (15)	New Zealand (04)	Trinidad and Tobago (12)
Canada (31)	Hungary (60)	Nicaragua (20)	Tunisia (52)
Chile (53)	Iceland (09)	Niger (03)	Turkey (89)
China (139)	India (82)	Nigeria (26)	Uganda (13)
Colombia (12)	Indonesia (63)	Norway (16)	Ukraine (73)
Congo, Dem. Rep. (15)	Iran (60)	Oman (35)	United Arab Emirates (40)
Congo, Rep. (12)	Iraq (06)	Pakistan (46)	United Kingdom (38)
Costa Rica (19)	Israel (37)	Panama (18)	United States (40)
Cote d'Ivoire (05)	Italy (97)	Papua New Guinea (03)	Uruguay (32)
Croatia (59)	Jamaica (16)	Paraguay (21)	Venezuela (30)
Cuba (60)	Japan (16)	Peru (33)	Vietnam (60)
Cyprus (28)	Jordan (51)	Philippines (36)	Yemen (38)
Czech (91)	Kazakhstan (45)	Poland (63)	Zambia (08)
Denmark (57)	Kenya (12)	Portugal (59)	Zimbabwe (31)

Figure 1. 1 Top 15 and Top 10 of BITs Signers,1984-2012

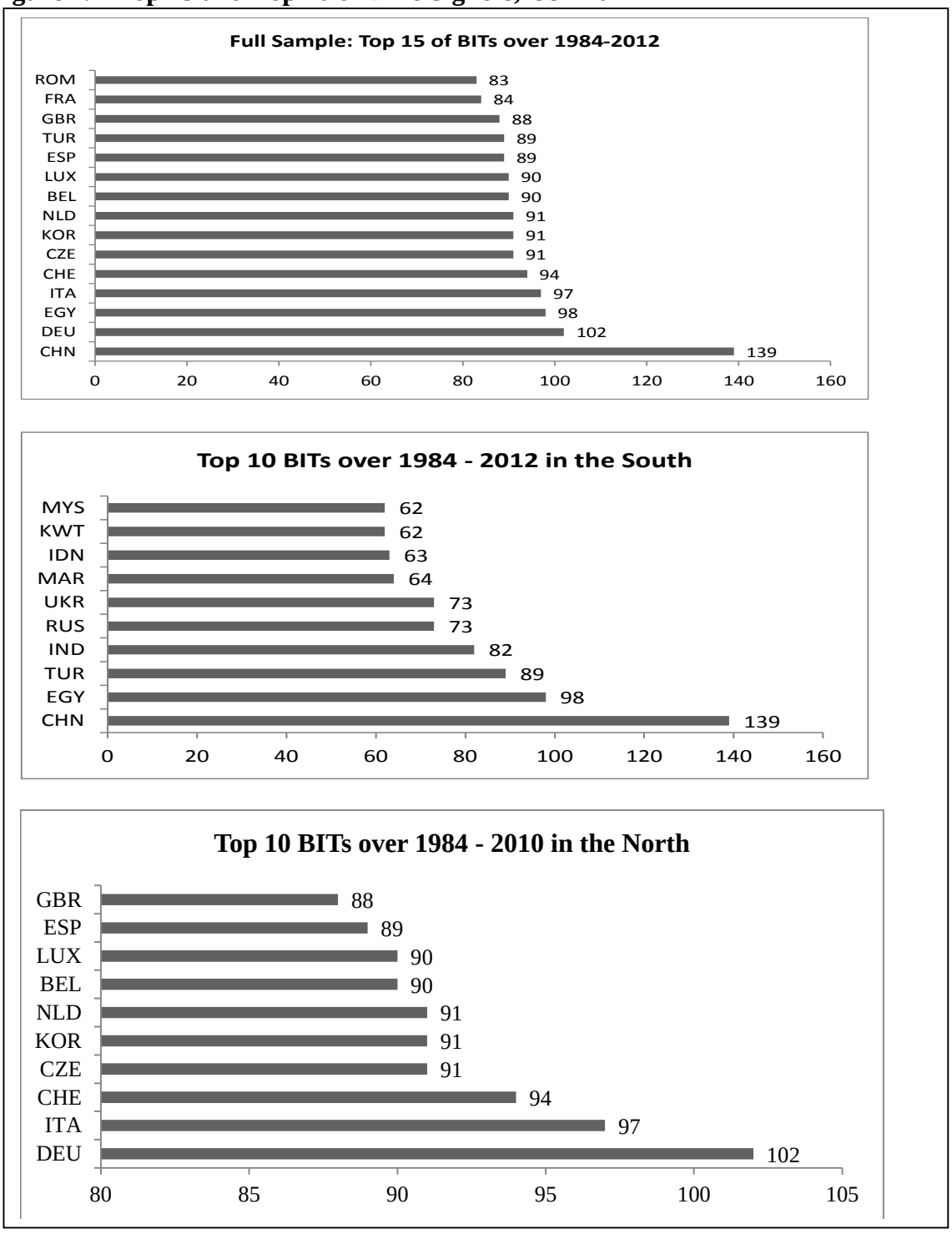
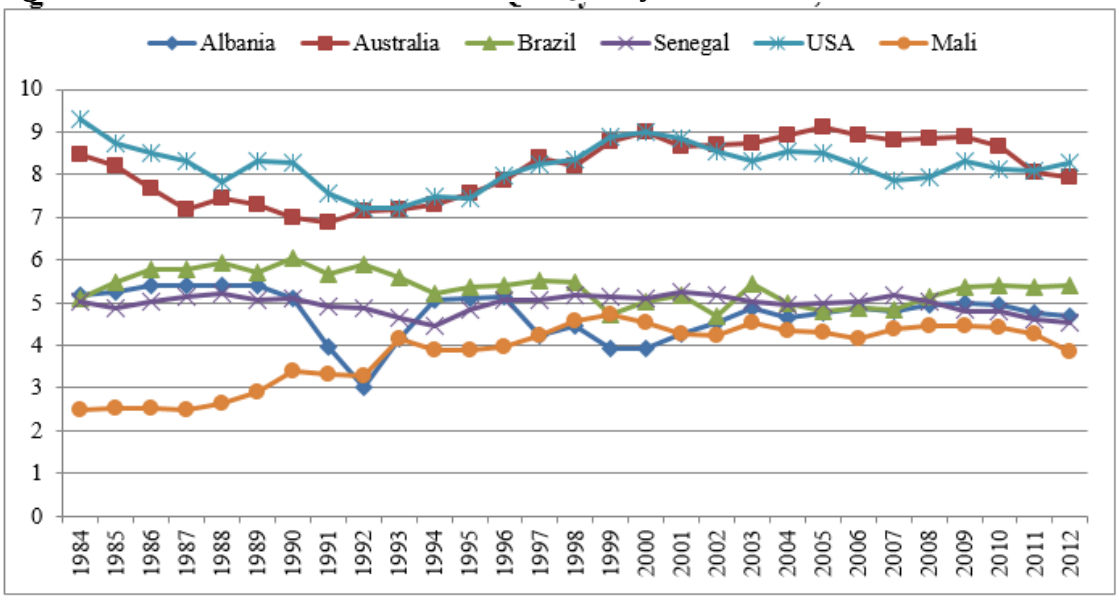


Figure 1. 2 Series of annual Institutional Quality of a few countries, 1984-2012



Chapter 2: The Determinants of Investor-State Disputes: A New Empirical Appraisal

2.1 Introduction

Since the signing of the first bilateral investment treaty between Germany and Pakistan in 1959, the number of BITs signed worldwide has increased at a relatively slow pace to reach about 385 BITs by the end of 1989 (UNCTAD 2017).This period of slow growth was followed by a rapid proliferation of BITs between 1990 and 2000. Following the year 2001, the number of BITs signed has been in steady decline. As of 2017, the total number of BITs signed is estimated at nearly 3,000. Most of these BITs were originally signed between developed and developing countries; developing countries aimed to attract and promote foreign investment, while developed countries sought to protect foreign investors from illegal expropriation or breaches of the clauses of an investment treaty on the part of the host country. Most BITs contain an investor-state dispute settlement (ISDS) provision, which guarantees both parties, the investor and the host country, the right to international arbitration if a dispute arises. Recent years have witnessed an explosion in the number of dispute claims following the establishment of the International Center for Settlement of Investment Disputes (ICSID). In 2015 alone, there were 70 cases of investor-state dispute claims, bringing the total number of investment dispute cases to 696 (IIA Issue Notes 2016). The rapid growth of investor-state dispute claims seems to be a natural consequence of the proliferation of BITs since the early 1990s.

The recent surge in investor-state dispute claims at the ICSID has captured the attention of several legal scholars, who have devoted numerous articles to the subject. If investment disputes have only caught the attention of scholars recently, trade disputes, on

the other hand, have long been investigated in the literature. In a recent publication, Miller Scott et al. (2015), in a descriptive analysis of investment dispute claims cases, concluded that large capital-exporting countries are the most likely to make use of the ICSID, while the respondent states are dominated by weak legal institutions. This paper seeks to investigate the determinants of investor-state disputes, examining the characteristics of the home country of investors and those of the investment host country. I argue that investment treaties are not the sole channels through which investor-state disputes originate; one must also account for other factors such as trade agreements. In fact, trade agreements are increasingly beginning to include some investment protection provisions in their texts. Failing to account for such an important factor suggests that the findings of previous studies on this subject should be taken with caution. Omitted variables in any empirical study cause some bias in the estimated coefficients. In the same vein, I also explore the possibility that investment host states that have several trading partners, either through trade agreements or other trade facilitations might experience a greater number of investment disputes. Specifically, I also investigate the effects of export partners on the incidence of investment disputes. I then explore the possibility that former colonial ties that permit and facilitate economic exchanges between former colonies and colonizers could also constitute a channel for investment disputes. If historical ties should not be ignored in any investigations of FDI decisions, then they should also be accounted for in any studies of investor-state disputes. Finally, I tackle the question of the effect of FDIs on the incidence of investment disputes by addressing the endogeneity of FDI using GMM estimations.

The empirical results show that both bilateral investment treaties (BITs) and free trade agreements (FTAs) have a positive and significant effect on the likelihood of an investment dispute. The fact that BITs positively impact the incidence of investment disputes is not surprising, as most investment treaties include provisions specifying the use of the ICSID in case a dispute erupts. This is consistent with statistics showing that the vast majority of investor-state dispute claims evoke bilateral investment treaties previously signed. The positive effect of FTAs on the likelihood of disputes results from the fact that some trade agreements contain investment-related provisions, a practice that has gained momentum in recent years. The results show strong evidence that foreign investors are increasingly taking advantage of the establishment of the ICSID and its ratification by investment host countries. This is clearly reflected in the positive and significant effect of the ICSID dummy variable on the incidence of investment disputes. The other control variables, such as institutional capacity, are consistent with previous studies. The negative and significant effects of institutions on the incidence of investment disputes suggest that institutionally weak countries are vulnerable at different levels. In addition to having to give up their sovereign rights by bringing investment disputes to international arbitration, they must also face the high legal costs of investment arbitration with their already limited resources. Another key finding in this paper is the positive and significant effect of former colonial ties on investment disputes. This finding suggests that existence of a prior colonial relationship between the investment host state and the investor home state plays into the incidence of investment disputes.

This paper is organized as follows. Section 2 briefly presents some background on investor-state disputes and the ICSID Convention. In sections 3 and 4, I explore the

determinants of investment disputes and present the methodological approach, respectively. Section 5 presents the empirical results, and section 6 addresses the robustness of the results. In section 7, I offer my conclusions.

2.2 A Brief Background on Investor-State Disputes and the ICSID Convention

There are conflicting findings on both theoretical and empirical grounds with regard to the effect of FDI on economic growth. The positive effect uncovered in theoretical models has not been unanimously supported empirically. Even on the empirical ground the results are not clear-cut, as the macro and micro empirical findings are divergent. Despite these opposing results, there is a belief in many countries, especially developing countries, that FDI is an important tool to achieve economic development, and consequently these countries strive to create a favorable environment for foreign investors. This investment climate is determined concomitantly by political, economic, and legal factors. On the other hand, factors such as the legal conditions in which foreign multinationals operate, the quality of the bureaucracy, and the transparency of the system of domestic regulations and dispute settlement will ultimately determine if the legal framework in place in a given country is suitable for foreign investment.

In recent years, many developing countries have made efforts to improve their domestic legal system by enacting specific legislation in order to create a more favorable climate for foreign investors. Despite the guarantees embedded in such legislation, investors rightfully still fear the lack of independence of the domestic courts of many host states, given the evident lack of an independent executive or judiciary in many developing countries. In face of such skepticism on the part of potential investors, many host countries have taken additional steps to grant investors international legal guarantees by

signing BITs. One feature found in BITs is the dispute settlement provision,[28] allowing foreign investors the option to present any disputes that have not been resolved amicably for settlement at an international jurisdiction.

The origin of the ICSID can be traced back to the 1960s, when the World Bank took the initiative to put in place a mechanism to settle investment disputes between host states and foreign investors, apparently to fill in the "gaps" that were evident in the existing structures. The text of the ICSID Convention was drafted from 1961 to 1965 and then adopted by the executive directors of the Work Bank in March 1965. It entered into force in October 1996 with ratification by twenty states. Most of the early member states were developing countries, especially in Africa. Since the convention was adopted, the number of participating countries has grown steadily and reached 135 countries from around the world in 2002.[29] As of April 2006, the number of contracting states of the ICSID Convention is estimated at 143 countries.

The primary purpose of the ICSID Convention is to promote economic growth by creating a favorable investment environment that will, in turn, enable the development of private international investment. It also aims to equally protect foreign investors and host states by offering advantages to both parties. In fact, the possibility of seeking arbitration in an international jurisdiction is an enormous advantage to investors who suspect the impartiality of the domestic legal courts of host countries. At the same time, the ratification of the convention by the host state is a signal to potential foreign investors of

[28] BITs include many other clauses addressing issues such as the scope and definition of foreign investment, most-favored-nation (MFN) status, national treatment (NT), fair and equitable treatment, guarantees and compensation in respect of expropriation, warranties of free transfer of funds, capital, and profits, and more.
[29] After a period of hesitation in the 1980s, most Latin American countries ratified the ICSID Convention in the 1990s.

its desire to offer a friendly investment environment. It also protects the host state against different forms of international litigation (Article 26). The ICSID Convention offers two methods of settling investment disputes: conciliation and arbitration. The conciliation method, which is more flexible and informal, is designed to help both parties reach an agreement, whereas arbitration is a more formal method. It is important to note here that, if the two parties are unable to reach an agreement, a binding award may be imposed.

2.3 Review of the Literature on Investment Disputes and Their Determinants

2.3.1 Theoretical Arguments

Freeman (2013) has constructed a theoretical framework to explain the evolution of investment disputes between foreign investors and host states into arbitral disputes. Borrowing from Most and Starr (1989), the author uses the concepts of "opportunity" and "willingness" to develop his theory. These two concepts were originally developed to link the individual choices made at the micro level to the global environment that supports and structures the decisions made at the macro level. Freeman argues that the opportunity for host states to adhere to international arbitration to settle an investment dispute depends on the consent of the state. But the statistics show that most countries have signed and ratified the ICSID Convention. As of October 2017, the number of signatory and contracting states is 161, according to the ICSID database, and only a handful of states (eight) have solely signed the convention. These figures testify of the willingness of most states to resort to international arbitration in case of potential investment disputes. Furthermore, Freeman argues that the availability of substitutes to domestic courts and the financial cost of arbitration will ultimately determine whether or not a foreign investor will pursue arbitration at the international level. Also, given the initial investment already

sunk in the host state, it is not necessarily in the best interest of a foreign investor to seek international arbitration. The long-term nature of the returns generated by such investments makes it preferable for foreign investors to resort to other methods of dispute resolution to avoid unnecessary conflicts that might damage future investment cooperation. This argument is supported by Jensen (2008), who makes the case that investors in Vietnam are reluctant to resort to international arbitration, seeking rather to preserve good relations between themselves and local and national government officials. Also, even if an investor wins a dispute, this does not guarantee compliance on the part of the host state. But I argue that most countries would prefer to avoid noncompliance with an ICSID decision, because this would send a bad signal to potential investors in an environment of international competition for foreign capital. Therefore, it is in the best interest of both partners to find a common ground in the settlement of investment disputes. Finally, Freeman suggests that a theory of investor-state disputes needs to take into account the constraints borne by states that prevent them from engaging is such disputes.

2.3.2 Previous Empirical Studies

Only a very few studies have examined the determinants of investment disputes. Most of the existing papers on disputes are trade related. The few studies that addressed the subject in relation with investment disputes are for the most part descriptive. One of the early studies on trade disputes relevant to the issues raised in this paper was by Horn et al. (1990). The authors examined whether the WTO dispute system is biased toward wealthy nations, which have the legal capacity and the economic power to afford the costs associated with trade disputes. They also argue that the high number of complaints brought by developed countries could be explained by the fact that these countries have the proper human capital needed to fully comprehend and detect breaches in trade agreements and to then take legal action. Additionally, they explore the possibility that more economically powerful countries might bring more disputes than poor countries because the latter find the costs to even initiate such complaints to be overwhelming. They argue that there should be a positive relationship between the probability of initiating a dispute and the difference in the GNP of the trading partners. The authors conclude that the low proportion of developing countries that initiate trade disputes is due to the discrepancy noticed in trade diversity and trade value.

One important determinant of trade disputes is the legal capacity of a partner country, a topic that has been intensively covered in early papers investigating trade disputes. In the absence of an accurate measure of legal capacity, most studies have relied on a proxy variable such as income per capita or the number of delegates a country has in Geneva. Busch et al. (2009), using a survey of WTO members, devised a new measure of the legal capacity of member countries that demonstrated the inaccuracy of earlier proxies, as the

authors discovered a poor correlation between their new measure and the earlier proxies. Other studies (Breuss 2001; Bown 2003a; Chang 2002) have raised the possibility of economic retaliation following a dispute filed by a trading partner. This can be exercised either by suppressing economic assistance or bilateral aid, thus leading to the deterioration of economic relations between the two countries, or by showing reluctance to enter into any future trade agreement because of the impaired relations. This argument is relevant only in the context of trade disputes, which generally arise between two governments. But in the case of investment disputes, the preceding argument may not hold because the two parties involved are an investor and a host country. Nevertheless, the home country of the investor, if it becomes aware of such a dispute, might deter the investor from undertaking such action to preserve the good economic relations between the two countries.

Besson and Mehdi (2004) among others (Iida 1999; Griffin 2002) affirm that international political factors could be a determinant element in trade disputes. Specifically, they argue that political relationships can exacerbate trade disputes, the outcome of which can be influenced by the advantage one partner may have over the other in terms of either resources or military superiority. I will not pursue the same line of reasoning in this paper but will instead argue that former colonial ties between the home state of the investor and the host state might influence a decision made by the investor to file a dispute against a host country. In fact, many studies have found supportive evidence that, in their investment decision-making process, firms generally account for factors such as culture, institutions, geographic proximity, and economic disparities (Ghemawat 2001; Shige and Tsang 2011). Historical links affect economic

exchanges between countries in many ways. Positive effects of historical ties on economic outcomes such as trade and foreign investment have been documented (Jones 1996; Rangan 2000; Rose 2002). In some cases, the relationship can turn out to have a detrimental effect. Hostile or conflicted relations, and military conflicts, have been found to exert a negative effect on FDI and economic exchanges (Nigh 1985; Jensen and Young 2008; Alfaro et al. 2008; Li and Vashchilko 2010). Given that historical ties affect foreign direct investment, one should thus account for that variable in analyzing the determinants of investment disputes.

More recently, two papers (Kim 2016; Kuenzel 2017) have addressed other aspects of investment disputes. The latter examined the determinants of WTO trade disputes and concludes, among other findings, that there is a higher likelihood of treaty breach among larger WTO members. The former examined the issue of investor-state dispute settlement in relation to the rule of law and democracy, arguing that the reinforcement of democratic institutions in a host state is correlated to a low risk of pursing an investment dispute on the part of private investors. In fact, this argument has been corroborated by Freeman (2013), who uncovered a negative correlation between countries' institutional capacity (in terms of rule of law, law and order, and corruption level) and the number of dispute claims brought against them after controlling for important variables such as number of ratified BITs, stock of FDI, GDP growth, FDI (as a percentage of GDP), exchange rate regime change, and other variables.

In this paper, I contribute to the debate on the determinants of investment disputes by bringing to the analysis some geographic and cultural factors (contiguity, common official language, distance, former colonial ties) that inevitably affect economic

exchanges between countries and can potentially be a channel for investment disputes. Curiously, these important factors have been omitted from previous studies, rendering their findings biased. Additionally, I argue that bilateral investment treaties are not the only pass-throughs of investment disputes, as other kinds of treaties such as free trade agreements are increasingly incorporating some investment provisions in their texts. In the same vein, it can be argued that the more trade partners a country has, the more investment disputes the country will experience. Table 1 presents a summary of the control variables used in this paper.

Table 2. 1 Summary Statistics

	Variable	Obs.	Mean	Std. Dev.	Min	Max
Dep.Var	Disputes	292131	0.004	0.066	0	1
Bilateral Control Var.	BITs	292131	0.006	0.074	0	1
	FTA	292131	0.009	0.095	0	1
	InstDist	292131	8.847	6.517	0.004	66.068
	ASYM	292131	0.621	0.299	5.17E-05	0.996
Home Country Control Var.	EduSec_Host	292131	68.059	30.682	3.886	160.619
	logGDP_Host	292131	0.968	1.438	-2.087	4.122
	GDPGr_Host	292025	0.000	0.170	-3.563	2.537
	Trade_Host	292131	78.755	36.519	12.368	254.606
	Polity_Host	292131	6.524	3.197	0	10
	GS_Host	292131	6.731	1.642	0.903	10
	FDIS_Host	292131	5916.129	21632.610	-28293.9	314007
	ICSID_Host	292131	0.699	0.459	0	1
Host Country Control Var.	EduSec_Home	292131	81.151	31.979	4.607	160.619
	logGDP_Home	292131	1.895	1.666	-1.715	4.456
	GDPGr_Home	291998	0.000	2.348	-6.117	6.171
	Trade_Home	292131	85.766	60.267	12.368	449.992
	Polity_Home	292131	6.850	3.239	0	10
	GS_Home	292131	6.804	1.571	0.902778	10
	FDIS_Home	292131	6777.157	21075.440	-29679.4	314007
	ICSID_Home	292131	0.733	0.442	0	1
Geographical and Cultural Var.	contig	292131	0.040	0.195	0	1
	comlang_off	292131	0.127	0.334	0	1
	colony	292131	0.019	0.138	0	1
	ldist	292131	8.602	0.881	4.088	9.891

Notes: BITs is a binary variable equals to 1 when host country h and home country of the Investors have signed a BIT in year t, FTA is also a binary variable defined similarly. The control variables include Secondary education (ratio of total enrollment to the population of the age group), GDP, Openness to trade (sum of exports and imports as a share of GDP), FDI stock, ICSID indicates if a country has ratified the ICSID convention (ICSID=1 if the country ratified the convention, 0 otherwise), Institutional variables: POLITY and Government Stability; Contiguity, common official language,Colony and distance between the host country and home country of the investor. ASYM is the absolute value of the difference of the per capita GDP of the host country of the investment and that of the home country of the investors in percentage of the sum of the per capita GDP of both countries.

2.4 Methodological Approach

2.4.1 General Setup

Let's consider two countries denoted by the indexes *h* and *r* involved in an investment dispute, where *h* is the home state of the investor and *r* the respondent state (host state). Note that the home state of the investor is only indirectly involved in an investment dispute, through its national doing business in a foreign country.

Let's define $D_{h,r,t}$ as a binary variable taking 1 if home and host countries have been involved in an investment dispute in year *t* and 0 otherwise. The goal is to determine the characteristics of home and host countries that influence the likelihood of an investment dispute between the two countries. The probability that two countries will become involved in an investment dispute can be modeled as follows:

$$P(D_{h,r,t} = 1) = F(\beta_0 + X_{h,r}\beta + X_{h,t}\gamma + X_{r,t}\delta + \varphi BITs_{h,r,t} + \theta FTA_{h,r,t} + \mu_h + \alpha_r + \vartheta_t) \quad (1)$$

where F is a cumulative density function (cdf) monotonically increasing in its argument. It can either be a Probit or a Logit function. Note that $X_{h,r}$ represents the bilateral characteristics of home and host countries, while $X_{h,t}\ and\ X_{r,t}$ contain time variant individual characteristics of countries *h* and *r*. Also, μ_h,α_r represents, respectively, home and host (respondent) countries' fixed effects, and $\vartheta_t$is the time fixed effect. More specifically, equation (1) can be rewritten as follows:

$$P(D_{h,r,t} = 1) = F[\beta_0 + \beta_1 \ln(Dist_{h,r}) + \beta_2 Language_{h,r} + \beta_3 Colony_{h,r} + \beta_4 Contiguity_{h,r} + X_{h,t}\gamma + X_{r,t}\delta + \theta FTA_{h,r,t} + \varphi BITs_{h,r,t} + \mu_h + \alpha_r + \vartheta_t) \quad (2)$$

where $Dist_{h,r}$ is the simple distance between the countries' most populated cities, $Language_{h,r}$ is a dummy variable taking the value 1 if both countries *h* and *r* have the same official language, $Colony_{h,r}$ is a dummy taking 1 if countries *h* and *r* were ever in

a colonial relationship, and $Contiguity_{h,r}$ is a dummy taking 1 if the two countries share a border. The individual time variant characteristics $X_{h,t}$and $X_{r,t}$ include the following variables: real GDP per capita, institutional quality; regional dummies (Africa, Asia, Europe, and America), $BITs_{h,r,t}$ as a binary variable indicating whether countries *h* and *r* have signed an investment treaty in year *t*, and $FTA_{h,r,t}$ as a binary variable taking 1 if both countries were part of a trade agreement in year *t*.

2.4.2 Latent Variable Formulation

Let $D^*_{h,r,t}$ be a continuous variable (unobservable), namely a latent variable, that is determined as follows:

$$D^*_{h,r,t} = \beta_0 + X_{h,r}\beta + X_{h,t}\gamma + X_{r,t}\delta + \varphi BITs_{h,r,t} + \theta FTA_{h,r,t} + \mu_h + \alpha_r + \varepsilon_{h,r,t} \quad (3)$$

$D^*_{h,r,t} = Z'_{h,r,t}\psi + \varepsilon_{h,r,t}$ (3'), where $\psi = (\beta_0\ \beta\ \gamma\ \delta\ \varphi\ \theta)'$ and $\varepsilon_{h,r,t}$ is the error term assumed uncorrelated to *Z* (exogeneity assumption). Although we do not observe $D^*_{h,r,t}$, we do observe the decision $D_{h,r,t}$ made by the investor (of home county *h*) to file a dispute claim against a country *r* (host or respondent country). We assume that a foreign investor will decide to file a claim against a country after carefully assessing the cost and benefit of such decision. The investor will probably do so if the net utility of the decision is positive. The ordinal characteristic of the utility function makes it difficult to observe the actual value of the net utility, but we do observe the final outcome of the decision made by the investor. This gives us the following decision rule:

$$D_{h,r,t} = 1 \ if\ D^*_{h,r,t} = Z'_{h,r,t}\psi + \varepsilon_{h,r,t} > 0\ ; \quad (4)$$

$$D_{h,r,t} = 0 \ if\ D^*_{h,r,t} = Z'_{h,r,t}\psi + \varepsilon_{h,r,t} \leq 0\ . \quad (5)$$

The probability model that a dispute will occur between an investor of home country *h* and a respondent state *r* is conditional on the characteristic *Z* of both countries and, assuming that the error term follows a certain symmetric distribution, is given by:

$$\mathrm{P}(D_{h,r,t} = 1|Z) = \mathrm{P}\left(D^*_{h,r,t} > 0\right) = \mathrm{P}(\varepsilon_{h,r,t} > -Z'_{h,r,t}\psi) = 1 - F(-Z'_{h,r,t}\psi) = F(Z'_{h,r,t}\psi) \quad (6)$$

Depending on the distribution of the error term ε it follows that the cdf *F* will either be a cumulative Logit function or a cumulative Probit function. Due to the simplicity it offers, most empirical studies tend to use the Logit model.

2.5 Empirical Results

2.5.1 Data and Summary Statistics

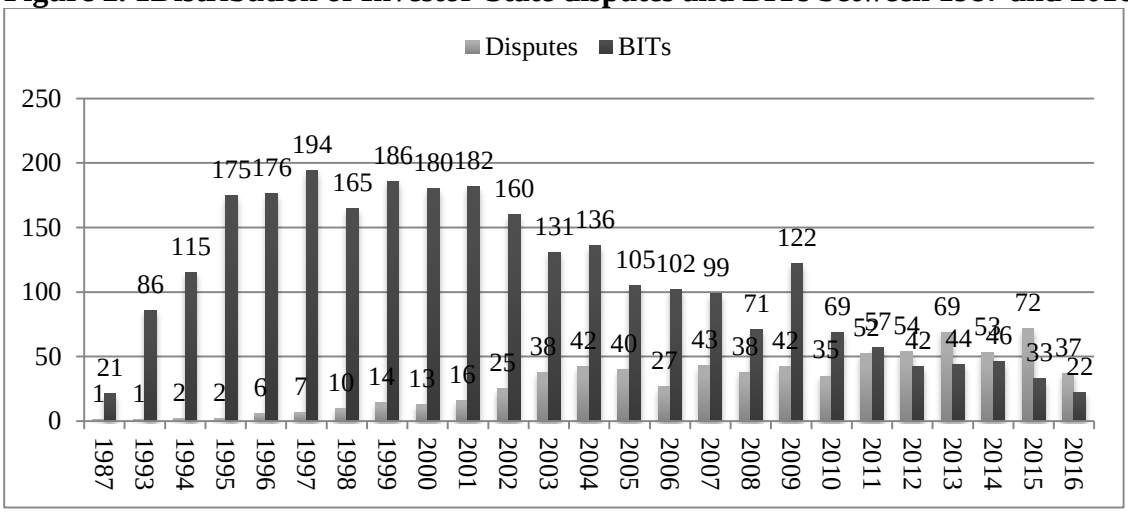
The period under investigation in this article runs from 1987 to 2015, a time frame essentially driven by the fact that the first investment dispute to be filed with the ICSID occurred in 1987. The country sample I used is based on data availability, which led to 106 host (respondent) states and 172 home states. Data on home and respondent states' individual characteristics are from the World Development Indicators (WDI 2016). Other bilateral characteristics between countries such as distance, contiguity, common official language, and any colonial connection are from the CEPII.[30] The FTA data is gathered from the World Trade Organization's statistics (WTO 2016). Data on BITs and investment disputes are both from the United Nations Conference on Trade and Commerce (UNCTAD 2016). At UNCTAD's website, data on disputes is available based on bilateral investment treaties and also on other kinds of treaties that have investment provisions. The data on institutional quality such as corruption, government stability, law

[30] The CEPII is a French research center producing databases on the world economy.

and order, and quality of bureaucracy are from the International Country Risk Guide (ICRG) (PRS, 2016).

According to the data gathered from UNCTAD (2017), the first investment dispute under a BIT was filed in 1987; the host state was Sri Lanka and the investor was from the United Kingdom. The number of cases brought before the ICSID gradually increased, with six cases filed in 1996; as of early 2017, the highest number of disputes filed in any give year was seventy-seven cases in 2015.

Figure 2. 1Distribution of Investor-State disputes and BITs between 1987 and 2016



Notes: The dark gray bars show the total number of BTs signed in a year while the light gray bars show the total number of disputes filed in a year.

Source: Compiled from Unctad (2017).

An investment dispute generally involves two parties, namely the host country and the foreign investor. Table 2 shows the top twenty host countries against whom an investment dispute has been filed and the top twenty home countries of investors who have filed a dispute. As of January 2017, according to data compiled by UNCTAD (2017), the most home states of investors have been developed countries while most states hosting the investments have been developing countries. This is not surprising, since most

developing countries are capital-importing countries, while developed countries are generally the exporters. Except for a few developed countries in the list of host countries in table 2, there seems to be a correlation between the frequency of investment disputes brought against a country and that country's institutional quality. In other words, countries with poor institutional quality tend to be involved in more investment disputes.

Table 2. 2 Top 20 host and home countries involved in investment disputes

Host States	# of cases		Home States	# of cases
Argentina	59		USA	142
Venezuela	40		Netherlands	74
Spain	34		UK	57
Czech Republic	33		Germany	47
Egypt	29		France	37
Canada	26		Canada	36
Mexico	24		Spain	35
Russia	23		Italy	29
Ecuador	22		Belgium	27
Poland	21		Switzerland	21
India	20		Turkey	20
Ukraine	19		Cyprus	16
Kazakhstan	17		Austria	14
USA	15		Greece	13
Bolivia	14		Russia	13
Hungary	14		Ukraine	9
Romania	13		Sweden	7
Peru	12		Chile	6
Kyrgyzstan	11		Luxembourg	6
Turkey	11		Mauritius	6

Notes: The table shows the number of investment disputes brought against the host states and the number of cases per home states of the investor over the period 1987-2016.
Source: Compiled from UNCTAD (2017)

As stated in the methodological section, I explore the determinants of investment disputes base on Logit estimations. On the estimation standpoint, Probit and Logit models should yield similar results; they only differ at the tail end of the distributions. Table 3 shows the estimation results for the Logit model.

2.5.2 Main Results

Table 3 provides the Logit estimation results where the dependent variable is the investment dispute incidences between the foreign investor and the host country of the investment, after controlling for different sets of explanatory variables. Column (1) of table 3 gives the fixed effect estimation results of the benchmark equation controlling for education and government stability in a dyadic approach. Additional control variables in column (1) include BITs and also the asymmetry in economic power defined as the absolute difference in the log of GNP between the host country of the investment and the home country of the investor relative to the sum of the GNP of the two countries. Using the same control variables, column (2) augments the estimation results in column (1) by controlling for free trade agreements. The results in columns (1) and (2) show significant and positive effects of BITs and FTA on the incidence of investment disputes.

One of the key control variables is government stability in the host country and in that of the home country of the investor. The results show a negative and highly consistently significant effect of the government stability of the host country on the likelihood of an investment dispute. The worse the institutional quality of the host country, the more likely it is that an investment dispute will erupt between a foreign investor and that country. A one-point decrease in the government stability of the host country increases the incidence of a dispute in a probability range between 6.3% and 17%. Also, the level of education in both countries seems to play a key role in how readily investment disputes are initiated. The estimation results reveal a positive and significant effect of education on the incidence of investment disputes. Disputes generally involve high costs, among which is legal cost. It is reasonable to think that only wealthy countries will have the required

resources to adequately face the incurred costs. Previous studies have used GDP as a proxy for legal costs, which has proven to be a poor proxy for legal human capital. Education is another variable that could be used as a proxy, but unfortunately this has not been tested in previous studies. Instead of resorting to external expertise to represent its interests at the ICSID, a host country could use its domestic legal resources. In the same vein, a log of GPD in the two involved countries has a positive and significant effect on the likelihood of an investment dispute, supporting the argument that wealthier countries are more capable of enduring the costs associated with an investment dispute. Additionally, the GDP growth of the home country of the investor has a positive and significant effect on the likelihood of an investment dispute. This positive and significant effect of GDP is consistent across all specifications. But, for the host country, GDP growth is not consistently significant across all specifications except for the last specification in column (11).

Another key variable generally used in analyzing investment disputes is the size of the investment host country relative to that of the home country of the investor. A foreign investor may behave differently depending on the size of the host country. Poor countries may have difficulty bringing charges against a powerful multinational enterprise (MNE) at the ICSID, or, similarly countries that are relatively weak may have disadvantages in facing MNEs. These observations justify the inclusion in the model specifications of the asymmetry variable, defined as the absolute difference in GDP between home and host countries relatively to the sum of GDPs of both countries. To avoid multicollinearity, I excluded the log GDP of host and home countries when the asymmetry variable enters the regressions. Consistently across all specifications (columns 1, 2, and 6–10), the results

in table 3 reveal a negative and significant effect of the asymmetry variable on disputes. One would expect that the wider the economic gap, the more likely it would be that an investment dispute will erupt. This finding is counterintuitive, puzzling, and hard to explain. A tentative explanation would be that both foreign investors and host countries get equitable treatment at the ICSID incentive dispute files as long as the legal cost does not exceed the dispute loss being claimed.

Regarding other control variables, the results show that for host countries, ICSID membership is a determinant and a significant factor in the incidence of investment disputes. In fact, according to ICSID rules, a private investor can bring charge against a host country and expect a fair arbitral process only as long as the host country has consented to ICSID arbitration regardless of its decision to participate or not in the proceedings. The positive and significant effects of ICSID membership for the host country suggest that the ratification of the ICSID Convention is something that foreign investors are taking advantage of. The results also reveal that the aid variable is not a determinant factor of investment disputes, contrary to the trade dispute where bilateral assistance can deter receiving countries to engage in a trade dispute. Ceteris paribus, African, Asian, European, and Oceanian foreign investors are less likely to be involved in an investment dispute than their counterparts on the North American continent. The home country of the greatest number of claimants is the United States, with a total of 138 claims as of the end of 2015, which represents about 20% of all claims (IIA Issue Note 2 2016). Proximity seems to play a key role in the occurrence of investment disputes, the results showing that when the host country and the foreign investor's home country share a common border, the likelihood of an investment dispute decreases significantly. This

finding seems at odds with the previous result, that the existence of a trade agreement significantly increases the likelihood of an investment dispute. In fact, one might argue that neighboring countries are more likely enter into trade agreements than countries that are distant from each other, such agreements forming the basis for potential investment dispute cases. Not surprisingly, I note that the distance variable has a significant and negative effect on the likelihood of an investment dispute. In fact, distance is generally viewed as a cost to foreign investment.

One of the key findings shown in table 3 is the positive and significant effect of a common colonial history on investment disputes. This variable seems to play an important role in investment dispute. This could result from the fact that private investors in developed countries feel greater familiarity, comfort, and accessibility doing business in their host countries' former colonies. Some of these investments might result in a dispute. Many scholars (Jones G. 1996; Rangan 2000; Makino et al. 2011) argue that, because of their historical ties, former colonies and their colonizers share similarities in terms of legal and administrative structure. This tends to reduce costs and facilitate economic exchange between the two countries.

Table 2. 3 Estimations Results

	Logit Estimations											
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(8)	(12)
BITs	0.716***	0.716***	0.733***	0.712***	0.734***	0.723***	0.689**	0.658**	0.684**	0.931***	0.866***	0.714**
	(0.275)	(0.275)	(0.257)	(0.255)	(0.256)	(0.273)	(0.270)	(0.284)	(0.271)	(0.291)	(0.282)	(0.278)
FTA		0.662***	0.729***	0.704***	0.724***	0.725***	0.715***	0.709***	0.712***	0.628**	0.624**	0.617**
		(0.253)	(0.244)	(0.248)	(0.251)	(0.258)	(0.257)	(0.273)	(0.258)	(0.286)	(0.302)	(0.243)
GSHost	-0.143***	-0.143***	-0.163***	-0.180***	-0.193***	-0.173***	-0.166***	-0.125***	-0.160***	-0.023	-0.052	-0.202***
	(0.027)	(0.027)	(0.029)	(0.027)	(0.030)	(0.030)	(0.031)	(0.032)	(0.031)	(0.040)	(0.033)	(0.035)
GSHome	0.088***	0.088***	-0.021	0.159***	0.160***	0.204***	0.227***	0.286***	0.228***	0.455***	0.383***	0.311***
	(0.030)	(0.030)	(0.033)	(0.034)	(0.034)	(0.031)	(0.032)	(0.035)	(0.032)	(0.054)	(0.039)	(0.044)
ASYM	-0.939***	-0.939***				-0.667***	-0.617***	-0.683***	-0.623***	0.871***	-0.027	-0.158
	(0.133)	(0.133)				(0.134)	(0.138)	(0.152)	(0.137)	(0.211)	(0.149)	(0.198)
EduSec_Host	-0.003	-0.003	-0.002	0.006	0.005	0.007	0.012**	0.016***	0.016***	0.016*	-0.005	0.014*
	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.010)	(0.007)	(0.007)
EduSec_Home	0.018***	0.018***	0.003**	-0.002	-0.002	0.014***	0.013***	0.027***	0.013***	0.019***	0.011***	0.031***
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.003)	(0.002)	(0.003)
logGDP_Host			1.516***	0.805**	0.325							
			(0.333)	(0.407)	(0.379)							
logGDP_Home			0.418***	0.558***	0.536***							
			(0.039)	(0.042)	(0.046)							
Trade_Host				0.009***	0.008***	0.008***	0.013***	0.011***	0.013***	0.031***	0.010***	0.026***
				(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)
Trade_Home				-0.016***	-0.016***	-0.016***	-0.017***	-0.017***	-0.016***	-0.025***	-0.024***	-0.014***
				(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)
GDPGr_Host					1.917	1.748	1.591	1.430	1.395	0.967	-1.098	2.016***
					(1.444)	(1.366)	(1.242)	(1.287)	(1.202)	(1.039)	(1.133)	(0.717)
GDPGr_Home					0.029	0.128***	0.126***	0.102***	0.127***	0.120***	0.146***	0.092***
					(0.019)	(0.016)	(0.016)	(0.017)	(0.016)	(0.021)	(0.019)	(0.019)
logFDI_Host							2.046***	2.131***	2.014***	3.593***	2.371***	3.175***
							(0.212)	(0.207)	(0.211)	(0.409)	(0.253)	(0.352)
logFDI_Home							-0.022	-0.048	-0.023	-0.013	-0.017	0.013
							(0.091)	(0.082)	(0.089)	(0.062)	(0.097)	(0.063)

Table 3. Estimation Results (Continued)

	Logit Estimations											
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(8)	(12)
DebtAss_Host										-0.228*	-0.155	
										(0.127)	(0.107)	
DebtAss_Home										0.008	0.009	
										(0.020)	(0.014)	
ICSID_Host								1.550***	1.569***	2.370***		1.981***
								(0.366)	(0.362)	(0.660)		(0.434)
ICSID_Home								-0.142	-0.087	-0.166		-0.177
								(0.249)	(0.246)	(0.421)		(0.267)
contig										0.348**		-1.149***
										(0.173)		(0.175)
comlang_off										-0.133		-0.954***
										(0.154)		(0.186)
colony										1.107***		1.744***
										(0.191)		(0.191)
ldist										-1.219***		-1.705***
										(0.077)		(0.081)
Africa_Home								-3.199				-4.026
								(13.098)				(12.983)
Asia_Home								-0.317***				-1.327***
								(0.104)				(0.143)
Europe_Home								-0.377***				-1.847***
								(0.109)				(0.156)
Oceania_Home								-4.683***				-3.424***
								(1.033)				(1.123)
Observations	24,103	24,103	24,103	24,103	24,088	24,088	24,088	24,088	24,088	18,379	18,379	24,088
# ofpairid	1,148	1,148	1,148	1,148	1,148	1,148	1,148	1,148	1,148	915	915	1,148
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Notes. BITs and FTA are binary variables taking 1 if the host and home country have signed an investment treaty and a trade agreement in a given year, and 0 otherwise.
GS represents the Government Stability measure provided by International Country Risk Guide (ICRG,2012)
ASYM is the absolute value of the difference in the GDPs of the host and home countries in percent of the sum of the GDPs of both countries.
Trade is the sum of imports and exports in percentage of GDP and logFDI represent the log of the stock of FDI.
All equations are estimated using FE and the Standard errors in parentheses are estimated using vce(jackknife) option.
*** p<0.01, ** p<0.05, * p<0.1

Next, I explore how institutional distance affects the likelihood of an investment dispute. The preliminary results reported in table 4 show that the stability of the host country's government affects the likelihood of an investment dispute. The more stable the host country, the less likely that an investment dispute will erupt. But, generally speaking, institutional factors are multidimensional and should not be restricted to government stability only. In this section, I will account for other components of institutions and then investigate how the institutional distance between the host county and the home country of the investor affects investment dispute. Following Kogut and Singh (1988) and others, I define the institutional development distance as follows:

$$Institutional\ Development\ Distance(InstDist_{h,r,t}) = \frac{1}{12}\sum_{i=1}^{12}\left(Inst_{i,h,t} - Inst_{i,r,t}\right)^2 \Big/ V_i \quad (7)$$

where *i* represents the *i*th dimension of the institution and *Vi* represents the variance of the *i*th dimension. $Inst_{i,h,t}$and$Inst_{i,r,t}$ are the institutional quality index of the *i*th component for countries *h* and *r*, at time *t*.

Across all specifications, the results shown in table 4 show a negative and significant effect of institutional distance on the likelihood of an investment disputes. At first glance, these results seem counterintuitive. One might suppose that the larger the institutional gap between the investment host country and the home country of the investor, the less likely it is that an investment dispute will erupt. In fact, the great majority of foreign investors and MNEs are from developed countries, while investment host countries are for the most part developing countries. The inverse relationship between the institutional gap variable and the incidence of disputes could be because MNEs operating in less-developed counties with weak institutions, after carefully

weighing the cost of pursing a dispute, might rather preserve the good relationship they entertain with the host country's government with the hope that the returns on investments would be beneficial in the long term. In fact, most foreign investors aim for long-term returns when making investment decisions in developing countries.

Table 2. 4 Logit Estimations Results with Institutional Distance
Dependent Variable: Investment Dispute (1: Yes; 0, No)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
BITs	0.691**	0.680**	0.682***	0.651***	0.667***	0.677**	0.647**	0.797***	0.642**	0.642**	0.618**	0.887***
	(0.269)	(0.267)	(0.253)	(0.251)	(0.252)	(0.265)	(0.263)	(0.274)	(0.263)	(0.263)	(0.275)	(0.289)
FTA		0.612**	0.642***	0.625***	0.639***	0.669***	0.657***	0.579**	0.653***	0.653***	0.655**	0.579**
		(0.247)	(0.241)	(0.242)	(0.243)	(0.248)	(0.249)	(0.287)	(0.250)	(0.250)	(0.257)	(0.289)
Inst_Dist	-0.044***	-0.043***	-0.042***	-0.030**	-0.031**	-0.035**	-0.032**	-0.043***	-0.032**	-0.032**	-0.032**	-0.025
	(0.015)	(0.015)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.016)	(0.014)	(0.014)	(0.014)	(0.018)
EduSecHost	-0.006	-0.006	-0.007	0.003	0.003	0.006	0.011*	-0.001	0.016**	0.016**	0.018***	0.019*
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.006)	(0.006)	(0.006)	(0.010)
EduSecHome	0.018***	0.018***	0.005***	-0.002	-0.002	0.014***	0.013***	0.010***	0.012***	0.012***	0.026***	0.015***
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.003)
TradeHost				0.008***	0.007**	0.007**	0.011***	0.006*	0.011***	0.011***	0.009***	0.025***
				(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)
TradeHome				-0.015***	-0.015***	-0.015***	-0.015***	-0.021***	-0.015***	-0.015***	-0.017***	-0.022***
				(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)
ASYM	-0.858***	-0.859***				-0.592***	-0.546***	0.020	-0.554***	-0.554***	-0.612***	0.834***
	(0.123)	(0.122)				(0.129)	(0.132)	(0.141)	(0.132)	(0.132)	(0.148)	(0.203)
logGDPHost			1.456***	0.797**	0.409							
			(0.329)	(0.404)	(0.364)							
logGDPHome			0.398***	0.558***	0.536***							
			(0.035)	(0.042)	(0.046)							
GDPGrHost					1.486	1.431	1.331	-0.611	1.170	1.170	1.313	1.601**
					(1.130)	(1.105)	(1.070)	(0.938)	(1.085)	(1.085)	(1.127)	(0.763)
GDPGrHome					0.028	0.129***	0.128***	0.153***	0.130***	0.130***	0.108***	0.129***
					(0.019)	(0.016)	(0.016)	(0.018)	(0.016)	(0.016)	(0.016)	(0.020)
logFDIHost							1.982***	2.095***	1.951***	1.951***		3.413***
							(0.211)	(0.244)	(0.210)	(0.210)		(0.389)
logFDIHome							-0.017	-0.011	-0.018	-0.018		-0.004
							(0.084)	(0.090)	(0.083)	(0.083)		(0.061)

Table 4. Logit Estimations Results with Institutional Distance (Continued)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
DebtAssHost								-0.137				-0.204*
								(0.099)				(0.118)
DebtAssHome								0.008				0.007
								(0.014)				(0.020)
ICSIDHost									1.624***	1.624***	1.544***	2.315***
									(0.371)	(0.371)	(0.374)	(0.597)
ICSIDHome									-0.083	-0.083	-0.145	-0.131
									(0.245)	(0.245)	(0.246)	(0.428)
												0.566***
												(0.168)
comlang_off												-0.055
												(0.155)
colony												1.391***
												(0.190)
ldist												-1.080***
												(0.068)
AfricaHome											-3.099	
											(13.159)	
AsiaHome											-0.093	
											(0.099)	
EuropeHome											-0.316***	
											(0.107)	
OceaniaHome											-4.608***	
											(1.028)	
Observations	24,103	24,103	24,103	24,103	24,088	24,088	24,088	18,379	24,088	24,088	24,088	18,379
Number of pairid	1,148	1,148	1,148	1,148	1,148	1,148	1,148	915	1,148	1,148	1,148	915
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Notes. BITs and FTA are binary variables taking 1 if the host and home country have signed an investment treaty and a trade agreement in a given year, and 0 otherwise.
GS represents the Government Stability measure provided by International Country Risk Guide (ICRG,2012)
ASYM is the absolute value of the difference in the GDPs of the host and home countries in percent of the sum of the GDPs of both countries.
Trade is the sum of imports and exports in percentage of GDP and logFDI represent the log of the stock of FDI.
All equations are estimated using FE and the Standard errors in parentheses are estimated using vce(jackknife) option.
*** p<0.01, ** p<0.05, * p<0.1

Also, I investigated whether the results are sensitive to alternative institutional measures (see table 6 in the appendix). Specifically, I noted an inverse relationship between the government stability of the host country and the incidence of disputes, whereas a direct relationship is found for the home country. Since the institutional quality variable used is subjective, I reestimated the twelve equations reported in table 4 using an alternative measure of institutions, which is provided by POLITY IV.[31] Except for columns 7–11, the results reported in table 4 show a negative and significant effect of the POLITY IV variable on the probability of having an investment dispute. In other words, countries that tend toward autocratic systems of government are more likely to be part of an investment dispute than countries with more democratic forms of government. But, for investors' home countries, I note an insignificant effect of POLITY on the incident of investment disputes, contrary to the results obtained for the government stability variable provided by the ICRG.

2.6 Robustness Analysis: Alternative Specification

2.6.1 Poisson Model - Negative Binomial Model – Zero Inflation

The dependent variable is the number of investment disputes brought against the host state *h* in a giver year *t*. We therefore have a count-dependent variable that can take on values such as 0, 1, 2, …. Let Y_{ht} be the dependent variable—the number of investment disputes. Poisson regressions offer a standard framework to model count data such as this one. But one important shortcoming of the Poisson distribution is its property of equidispersion (equal mean and variance). In fact, much of the data is overdispersed

[31] POLITY IV provides information on authority and regime characteristics by coding democratic and autocratic "patterns of authority" and regime changes in independent countries.

(variance exceeds the mean), thus limiting the appropriateness of Poisson regressions to model such data. Many alternative models, such as Quasi Poisson or Negative Binomial distributions, have been suggested to handle the overdispersion issue.

The Poisson model assumes that $Y_{h1}, \dots, Y_{hT}$ are independent over time, conditional on $X_{h1}, \dots, X_{hT}$. The conditional distribution of Y_{ht} (the number of disputes) for host country h in year t given the regressors X_{ht} (strictly exogenous), following a Poisson distribution with parameter μ_{ht}, is $P(Y_{ht} = y|X_{ht}) = \frac{\exp(-\mu_{ht})\mu_{ht}^{y}}{y!}, y = 0,1,2, \dots$(8)

The parameter μ_{ht} is generally formulated using a loglinear function, $\ln(\mu_{ht}) = X_{ht}'\beta$. The Poisson model is characterized by the following property: $E[Y_{ht}|X_{ht}] = Var[Y_{ht}|X_{ht}] = \mu_{ht}$ (9)

An alternative to the Poisson model that accounts for the overdispersion that most datasets present is the Negative Binomial model, which is simply a generalization of the Poisson model that allows the variance to exceed the mean by adding an individual, unobserved effect into the conditional mean as $\ln(\mu_{ht}) = X_{ht}'\beta + \lambda_h$, where β is a vector of unknown parameters. The general conditional distribution of the Negative Binomial model [see Green 2011] is given by:

$$P(Y_{ht} = y|X_{ht}) = \frac{\Gamma(\theta\mu_{ht}^{Q}+y)}{\Gamma(y+1)\Gamma(\theta\mu_{ht}^{Q})}\left(\frac{\mu_{ht}}{\theta\mu_{ht}^{Q}+\mu_{ht}}\right)^{y}\left(\frac{\theta\mu_{ht}^{Q}}{\theta\mu_{ht}^{Q}+\mu_{ht}}\right)^{\theta\mu_{ht}^{Q}}, where\ Q = 2 - P \quad (10)$$

The conditional mean is by $E[Y_{ht}|X_{ht}] = \exp(X_{ht}'\beta) = \mu_{ht}$ and the conditional variance is $Var[Y_{ht}|X_{ht}] = \mu_{ht}\left(1 + \frac{1}{\theta}\mu_{ht}^{P-1}\right)$, where P is a scaling parameter. For P=0, we have a Poisson model; for P=1, we have the Negative Binomial form 1 (NB1); and for

P=2, we have the Negative Binomial form 2 (NB2). All these models can be estimated using maximum likelihood estimation methodology.

The type of dataset found in the present analysis calls for the use of zero inflated models. In fact, in many instances, a country will have several disputes brought against them in single year, and no disputes in any of the other years during the period under examination, 1987–2015. This causes the distribution of the number of disputes to exhibit a spike at zero. A large number of zeros indicates a country with "good institutions" that is only rarely involved in investment disputes, whereas other countries with "bad institutions" are often subject to these types of disputes. The dichotomy, zero and non-zero groups, brought into the characteristics of the dataset at hand here coupled with the preponderance of zeros recommends to model the data with zero inflated models such as Zero Inflated Poisson (ZIP) or Zero Inflated Negative Binomial (ZINB). Zero inflated models provide an interesting approach of modeling the excess zero in addition to accounting for the overdispersion. The dataset is modeled on the Bernoulli distribution, using two data-generating processes. For any given observation, namely the number of disputes filed against host *h* in time *t*, process 1 for zero disputes count is chosen with probability p_h, and process 2 with probability $1 - p_h$. Process 2, $g(y_h|X_h)$, generates dispute counts from either a Poisson or a Negative Binomial distribution, so that:

$$y_h \sim \begin{cases} 0 & with\ probability \quad p_h \\ g(y_h|X_h) & with\ probability \quad 1 - p_h \end{cases} \tag{11}$$

The probability of $\{Y_h = y_h|X_h\}$ is therefore as follows:

$$P(Y_h = y_h|X_h, Z_h) = \begin{cases} p_h(Z_h'\gamma) + \{1 - p_h(Z_h'\gamma)\}g(0|X_h) & if \ \ y_h = 0 \\ \{1 - p_h(Z_h'\gamma)\}g(y_h|X_h) & if \ \ y_h > 0 \end{cases} \tag{12}$$

$Z_h$represents the vector of zero-inflated covariates, and γ is the vector of zero-inflated parameters to be estimated.

2.6.2 Results

I begin my analysis of the results by looking at the basic count regression, namely the Poisson model, the results of which are shown in the first column of Table 5. The results clearly show a positive and significant effect of investment treaties and trade agreements on the likelihood of investment disputes. These results, consistent with those found in the first part of this paper, confirm my main findings. One significant result is that better institutional quality is associated with a lower probability of investment disputes. The negative and significant coefficient on the institution variable (*Inst_Qual*) is indicative of the low incidence rate of investment disputes as institutions improve. For instance, the incident rate ratio (IRR) for one standard deviation increase in the institutional quality is 0.662; that is, one standard deviation increase in institutional quality reduces the expected count of disputes by 33%.[32] And for a two standard deviation increase in institutional quality, the incident ratio is 0.438, which is equivalent to an expected 56% reduction in investment disputes. I also explore the possibility that countries with a greater number of export partners might experience more disputes, but the results as shown in the Poisson model reveal a positive but insignificant result.

The particularity of the data used in the present study justifies the use of zero-inflated models. To be certain, I first tested for the appropriateness of zero-inflated models using a Vuong test, which is simply a comparison between the standard Poisson or Negative

[32] Ceteris paribus, in the Poisson model the incident rate ratio (IRR) for a one-unit change in variable X_j is $\exp(\beta_j)$. Therefore, for a one standard deviation increase in variable we get $IRR = \exp(\beta_j * \sigma_j)$, and the percentage change is given by $\left[\exp(\beta_j * \sigma_j) - 1\right] * 100$.

Binomial Model and the Zero-Inflated Model. The Vuong results reported at the bottom of table 7 in the appendix show that the Z-values associated with both models are significant. Additionally, for the zero-inflated negative model, the dispersion parameter (LnAlpha) is significantly different from zero. These results show that zero-inflated models are a better fit for the dataset than standard count models. I then proceeded to estimate the zero inflated models.

The results of the Zero Inflated Poisson (ZIP) model are reported in the second column of table 5. It should be noted here that the results are shown in two parts. This is due to the fact that the ZIP model has two regimes. In one regime, the outcome is zero, and in the second regime, the outcome is modeled as a Poisson model. The inflated part of the results as displayed in column 2 specifies the equation that determines whether the disputes count is zero. For the predictor of the excess zeros, I chose the stability of the government in the host states. I argue that countries with stable governments and stronger enforcement of property rights should experience fewer investment disputes than those with unstable governments. The results show that the coefficient of government stability is positive and highly significant, thus revealing that the variable is a good predictor of the excess zeros. The inflated coefficient for this predictor indicates that one unit improvement in government stability in the host state reduces the log odds of an inflated zero by 0.187.

The second regime of the ZIP model assumes that the data-generating process follows a Poisson distribution. This second part of the model presents the following outcomes. Not surprisingly, the key variables of interest, trade agreements, and investment treaties continue to bear the expected signs and have a positive and highly significant effect on

incidence of disputes. The control variable, GDP growth, has a positive and significant effect on the likelihood of investment disputes. This result should be expected, because investment disputes are costly and only wealthy countries can afford to bring dispute cases before an international court. Developing countries with low income should especially seek bilateral settlements to avoid the unnecessary depletion of their scarce resources. The cost of arbitration, which varies significantly from US$1 million to more than $2 billion, is estimated to account for more than 10% of an award (Franck 2011; Kim 2017). Additionally, according to the statistics available at Unctad (2017), about 37% of investment disputes are decided in favor of states, while only of 27% of the cases are decided in favor of investors (Unctad, 2017). One important control variable included in the specifications is the number of export partners a given country has. The results show a positive and significant effect of export partners on disputes. Many trade agreements are now including some investment provisions; therefore, having more trade partners could induce more business activities or economic exchanges that could eventually constitute channels for investment disputes. It can also be seen from the results that European and Asian host countries are less likely to have disputes brought against them. This might have something to do with their somewhat better institutional quality.

Another robustness check of the findings of this paper that addresses both the excess of zeros and the overdispersion of the data is the zero inflated negative binomial (ZINB) model. The results reported in column 5 of table 5 are consistent with the previous findings. Most of the control variables continue to bear the expected signs. The stock of foreign direct investment has a positive and significant effect on the incidence of investment disputes. This result is not surprising, as one of the purposes of bilateral

investment treaties from the perspective of developing countries is to attract foreign investment. The inflow of investments generated by these treaties could also eventually lead to disputes between the host state and the foreign investor. The ICSID variable, which indicates whether a country has ratified the ICSID Convention, is negative and highly significant in both ZIP and ZINB estimations (see columns 2 and 5). One plausible explanation could be that countries that have ratified the convention fear the possibility that foreign investors have to resort to the ICSID for international arbitration, which thus deters them from engaging in actions detrimental to the investor's interest. Both models (ZIP and ZINB) present some similarities in terms of the effects of institutional quality on the incidence of disputes. For instance, one standard deviation decrease in the quality of institutions of the host state yields an incidence rate ratio of 2 (a 100% increase in the IRR).

And last, I explored the possibility that the endogeneity of the FDIs could potentially render the estimates biased and inconsistent. Such endogeneity could arise for many reasons, including omitted variables or strategic behaviors on the part of host states. Many countries sign BITs to attract foreign investment, which could potentially impact the incidence of disputes, as shown by the positive and significant effect of FDI stock on investment disputes (see table 5 below). But most countries care about their reputation and suffer substantial cost in terms of loss of FDI following disputes, as foreign investors are well aware of the dispute cases in which a host country is involved. It has been estimated that FDI loss can reach US$55 million on average, and FDI loss is more severe when the settlement favors the investor (Allee and Peinhardt 2011). Therefore, it is reasonable to think of reverse causality between FDIs and investment disputes. The GMM

results are similar to the previous findings. Natural resources, defined as a country's resource endowment in oil, natural gas, coal, and other commodities, has no insignificant on the investment disputes. In addition, I note that the level of a country's development, as measured by its per capita GDP, has a positive and significant effect on investment disputes. The other control variables, such as investment treaties and trade agreements, all have a positive and significant effect on investment disputes.

Table 2. 5 Zero Inflated Models estimations

	(1)	(2)	(3)	(4)	(5)
VARIABLES	Poisson Est.	ZIP Est.	Poisson GMM Est.	NB Est.	ZINB Est.
CBITs	0.049***	0.011***	0.012***	0.034***	0.012***
	(0.013)	(0.003)	(0.004)	(0.006)	(0.003)
CPTAS	0.064***	0.030***	0.035***	0.042***	0.043***
	(0.024)	(0.010)	(0.010)	(0.012)	(0.007)
LNpcGDP	-0.773	0.110	0.173**	-0.237	0.095
	(0.862)	(0.082)	(0.083)	(0.200)	(0.078)
Nat_Resources	0.027*	0.003	0.006	0.033**	0.005
	(0.016)	(0.007)	(0.006)	(0.015)	(0.006)
Trade Openness	-0.004	-0.006***	-0.005**	0.009**	-0.004**
	(0.006)	(0.002)	(0.002)	(0.004)	(0.002)
GDP_growth	0.023	0.039**	0.015*	0.010	0.027*
	(0.017)	(0.016)	(0.008)	(0.009)	(0.014)
LnFDI_Stock	0.202**	0.247***	0.214***	0.153***	0.213***
	(0.087)	(0.043)	(0.040)	(0.052)	(0.035)
Inst_Qual	-0.303**	-0.490***	-0.487***	-0.167*	-0.487***
	(0.139)	(0.078)	(0.072)	(0.094)	(0.070)
Exp_Partners	0.609	1.547***	1.587***	0.610	1.488***
	(1.404)	(0.429)	(0.356)	(0.678)	(0.351)
ICSID	0.712**	-0.192	-0.436***	0.598**	-0.434***
	(0.299)	(0.154)	(0.144)	(0.239)	(0.135)
cont_africa		-0.077	-0.428**	2.450**	-0.156
		(0.162)	(0.169)	(1.193)	(0.154)
cont_asia		-0.973***	-1.250***	-0.577	-1.149***
		(0.198)	(0.205)	(0.575)	(0.179)
cont_europe		-0.645***	-0.942***	-0.910**	-0.824***
		(0.216)	(0.254)	(0.423)	(0.166)
cont_oceania		-0.539	-0.586	2.311	-0.398
		(0.337)	(0.375)	(4.370)	(0.341)
Constant		0.110	-1.015*	-0.166	-0.478
		(0.612)	(0.563)	(1.748)	(0.564)
Inflate		-0.187***			-3.726***
		(.0627)			(1.338)
Constant		1.497***			14.388**
		(0.387)			(5.626)
Observations	2,494	2,494	2,408	2,494	2,494
# of Countries	86			86	
FE	YES	YES	YES	YES	YES

Notes: The dependent variable is the claim of investment disputes. CBITs is the cumulative number of BITs signed in a given year and CPTAs is the cumulative number of trade agreements signed in a given year. The variable Exp_Partners represent the number of export partners that a country has in a given year. ICSID is an indicator variable telling if the country has signed the ICSID convention. Inst_Qual is the quality of institutions measured by averaging Government Stability, Corruption, Quality of Bureaucracy, Law and Order, Investment Profile and Socioeconomic conditions. Trade openness is the sum of import and export in percentage of GDP.LnpcGDP is the natural log of per capita GDP. Natural resources represent the sum of oil rents, natural gas rents, coal rents, mineral rents and forest rents.
Robust standard errors in parentheses*** p<0.01, ** p<0.05, * p<0.1

2.7 Conclusion

This paper seeks out the determinant factors of investor-state disputes from the dual perspective of the home state of the investor and the investment host state. Existing literature (e.g., Nathan W. 2013, Scott et al. 2015) has shown that the host country's institutional capacity plays an important role in the incidence of investment disputes. My findings confirm that institutionally weak host countries have the largest number of dispute claims brought against them. Additionally, the results show that despite the institutional and economic advantages provided by a foreign investor's home country, that investor might be reluctant to pursue an investment dispute due to sunk costs and the long-term nature of the return on investment. Also, I document that international investment treaties are not the sole pass-throughs of investment disputes. Other channels such as free trade agreements are relevant in any analysis of investment disputes because of the investment protection provisions they incorporate. Finally, former colonial ties that encourage extensive economic exchange between former colonies and colonizers are an important determinant of disputes. One major implication of this paper is that institutional quality still matters, especially in the investment host states, most of which are developing countries.

Chapter 3: Do Double Tax Treaties Crowd Out Tax Revenues?

3.1 Introduction

Many countries worldwide are increasingly confronted with enormous fiscal deficits due to a rapid expansion in government spending and a contraction in tax revenues. According to the endogenous growth theory, fiscal imbalances when contained and lowered by reducing public expenditures or raising revenue can help improve economic growth (Ghura, 1998). To maintain fiscal deficits at a reasonable level many countries have resorted to massive cuts to their spending in many sectors of their economy. At the same time spending are needed for example in institutional infrastructure in order to attract private investors and sustain economic growth. Therefore the resort to tax revenue seems unavoidable as part of policy tools that many governments utilize to mobilize resources in order to provide for public goods and services. This is the case because other sources of revenues such as debts or natural resources are not sustainable in the long term. To meet those ends countries also rely increasingly on resource mobilization at domestic and international levels. But different factors come into play in order to effectively levy taxes and reach the taxation target. These factors include for instance the level of development proxy by GDP per capita, the structure of the economy, different constraints on the tax system, etc. Economic development also goes along with increased demand for public expenditure (Tanzi, 1987). Surprisingly, despite all these challenges encountered to mobilize tax revenues countries enter into tax treaties that ultimately result in loss of tax revenues.

According to the International Tax Glossary, tax treaty is an agreement signed between two or more countries for the avoidance of double taxation. Double Tax Treaties

(DTTs) generally involve two independent tax jurisdictions that desire to harmonize their tax system with respect of the taxation of their national companies operating in the territory of the other treaty partner. The intended purpose for capital-importing countries, which is to attract massive foreign direct investment, generally ends up being marginal or inexistent as evidenced by many studies. The findings as to the effects of DTTs on FDI vary greatly depending on the use of aggregate FDI or bilateral FDI as dependent variable. Additionally to the inconclusive effect of DTTs on FDI, Easson (2000) argues that DTTs lead to a loss of tax revenue due to the asymmetry of treaty partners in terms of inflows of foreign investments especially in the case of tax treaties involving capital-exporter countries and developing countries.

Several studies have examined questions related to tax revenue (as a share of GDP) in connection with different outcomes of the economy. Very few papers in the economics literature have examined the determinants of tax revenues and most of these studies have focused on developing countries. Also the literature on the effects of DTTs on the economy is very limited. The rare papers that dealt with questions related to tax treaties are mainly concerned with their effects on foreign investments. To the best of my knowledge this paper is the first to empirically investigate the effect of double tax treaties on tax revenues. This paper envisions shedding more light on this question that has been long raised in the field of international taxation but has never been subject to any investigations on the empirical ground.

I use a panel data of 37 countries over the period 1990-2010 to investigate the nature of the effects of tax treaties on tax revenues. Controlling for the potential determinants of tax revenues, I expect to uncover the true causal effects of tax treaties on tax revenues.

Using a fixed effect and system GMM estimation methodology, the preliminary results show a positive and significant effect of tax treaties on tax revenues followed by a negative and significant effect as more tax treaties are concluded. The results also reveal that the effects of tax treaties are not contemporaneous and there is at least on year lag before the effects set in.

The rest of the paper is organized as followed. Section 2 gives a general background on double tax treaties. Sections 3 and 4 deal with recent developments on tax treaties and the determinants of tax revenues. In section 5, I explain the methodology used to explore question at hand. Section 6 and 7 discuss the results and conclusions.

3.2 Background on Double Tax Treaties

3.2.1 Brief history on Double Tax Treaties

Tax treaties made their appearance during the period following the World War I as a result of a rapidly growing cross-border investment and trade. At that time countries feel the need to negotiate bilateral tax treaties with other countries to assist in the avoidance of double taxation stemming from international transactions. Following the 1920 Brussels International conference, the League of Nations undertook the investigations of juridical double taxation problems. The report on Double Taxation prepared by a small group of fiscal economists will form the first draft of model tax treaty published in 1928. As result, a large network of tax treaties will emerge. This first draft limited in scope had been further expanded beginning in 1929 by a Fiscal Committee put in place by the League of Nations. Subsequent conferences held in Mexico City in 1940 and 1943 will yield what is become known as the "Mexico draft". One important feature that is at stake in the negotiation of the tax treaty is the allocation of the primary taxing jurisdiction. In fact the

extent to which the host country forgoes its taxing rights will ultimately determine the magnitude of loss of tax revenues. The Mexico draft will temporally decide in favor of developing countries by attributing the primary taxing jurisdiction to the country of source of income. This decision will be changed three years later during the revision held in London in 1946, which will switch back the taxing jurisdiction to country of residence of the tax payer in the "London draft". In spite of the shortcomings of the Mexico and London drafts, the principles embedded in these models will be followed by several countries for about a decade (1946-1955) due to the increasing interconnexion of economies and the need for harmonization of taxing rules, definitions and methodologies. Under the United Nations that succeeded the League of Nations in 1945, a new council has been formed that undertook a revision of the London draft. Following the failure of the council established by the United Nation to significantly improve the existing draft, the Organisation for European Economic Cooperation[33] (OEEC) took over the work. In 1956 the Fiscal Committee established by the OEEC worked on a draft of a bilateral tax treaty that all members would agree upon.

3.2.2 From the OECD Tax Treaty to the UN Tax Treaty

The OECD draft published in 1963, as designed, was favorably biased towards developed countries. This is not surprising due to the fact that the great majority of the 34 OECD countries are developed and capital exporters. This explains why the first draft of OECD tax treaty echoes the interests of OECD members by allocating taxing rights to the country of residence of the taxpayer. After several years of application and many revisions, the final version of the OECD Tax treaty model was published in 1977. One of the

[33] The OEEC became the Organisation for Economic Co-operation and Development in 1960.

characteristics of the OECD model was that it is more suitable for tax agreement negotiation between developed countries.

Despite the success noticed in eliminating double taxation with the OECD model, only a handful of tax treaties would be concluded between developed and developing countries. Given that developing countries are mostly capital importing countries, the way the OECD model was designed could only produce unequal results for developing countries because of the loss of tax revenues incurred. In response to the deliberately biased OECD tax treaty model, the developing countries will seek to develop their own model treaty. Under the leadership of the United Nation, an Ad Hoc Group of Experts from developed and developing countries was formed in 1968 to develop a more suitable model tax treaty between developed and developing countries. Along with some international organizations[34] the ad hoc group will publish a manual for the Negotiation of Bilateral tax Treaties between developed and developing countries, followed by the first model of UN tax treaty model published in 1980. It is worth noting that despite their differences the UN model utilized the 1977 OECD model as a reference. Expectedly the UN model allocated more rights to tax to capital importing countries and developing countries with specific emphasis on passive investment income and business income. The UN model has gone under various revisions and the last revision was done in 2011.

3.2.3 US Tax Treaty and Other Tax Treaty Models

In 1935 the United States signed with France an income tax treaty. This treaty, based on unofficial model, is considered to be the first tax treaty signed by US (Zarb, 2011). The

[34] International Organizations that took to the discussion include International Monetary Fund, International Fiscal Affaire Association, OECD, Organization of American States, and International Chamber of Commerce.

treaty signed between US and UK in 1945 was also based on unofficial model that served for the subsequent treaty negotiations. In 1976, the US Treasury Department has developed the first official treaty model to use for tax treaty negotiations. Five years later, a model of Income Tax Convention dealing with "treaty shopping" was published in 1981, which would be replaced by another version in 1992. This version of the US tax treaty model has gone through different revisions until 1996. In November 2006, the US treasury has released the United States Model Income Tax Convention and Model Technical Explanations. Comparable to the OECD model in structure and terminology, the US model reflects the interests of the United States and allocates the taxing rights to US.

It's frequent to note that even some developed countries would use the OECD model as a starting point and then depart from that on some specific aspects. Also some countries members of the OECD have expressed some reservations with regard to some rules of the OECD model. This justifies why some countries make changes to account for their own economic interests and in accordance of their domestic law. Beside the US, countries such as Belgium, Netherlands and Russia have their own tax treaty as well. The general intent of these treaties is to indicate to probable tax treaty partners their stance on specific tax matters.

3.2.4 Consequences of Double Tax Treaties

Double taxation can be harmful to economic activity in the sense that it can negatively affect the flow of foreign investment coming into a country. To paraphrase Egger (2006), "one of the most visible obstacles to cross-border investment is the double taxation of foreign-earned income". In addition to reducing the likelihood of double taxation, double

tax treaties can help lower uncertainty that potential investors might experience with regard to the foreign tax systems by setting the rules, standardizing and harmonizing the definitions and calculations of taxes. Also, implementation of double tax treaties is often interpreted as willingness for contracting countries to create the fiscally facile environment necessary for prosperous business operation by potential investors. There are also some costs associated with double tax treaties. When the tax treaty grants the residence country with the jurisdiction to tax or if it cuts down the tax rates of the host country, this will result in a reduction in the amount of tax revenue collected by the host country. To make matters worse there is no guarantee that the tax rate cut will induce the expected inflows of foreign investments. Instead it only shifts the tax revenue from one country to another. There is no clear finding as to the effects of DTTs on FDI. In the context of the United States, Blonigen and Davies (2004) find little evidence that DTTs have improved US FDI over the period1980-1999. Neumayer (2006) show that the FDI inflows to developing countries have been increased as a result of the DTTs signed with the US and other capital exporter countries.

Also resulting from the conclusion of a DTT is the decline in tax receipts the home country might incur subsequent to low tax rates imposed on investments. Additionally, there are some administrative costs incurred by the contracting parties related to the negotiation and the ratification of the treaty convention. These tax agreements will generally be signed at the expense of the financial sovereignty of the contracting parties. Reciprocal features exist in Double Tax Treaties in the sense that a contracting country can simultaneously act as a source and a home country. In the case of DTTs between two developed countries, the benefits gained by investors can be offset by the benefits offered

to investors of the host countries in the home countries. But in the case of DTTs between developed and developing countries this outcome needs not hold because of the asymmetry of foreign investment flow. The resulting effect of DTTs for developing countries is likely to be a loss of tax revenue. Easson (2000) first put forth the idea that tax treaties lead to loss tax revenue when the treaty partners are asymmetrical in terms of investments. In the same vein Chisik and Davies (2004) note that tax treaties rates tend to fall over time and most governments tax the income generated by foreign firms through the so-called withholding tax on repatriation. The withholding tax rates decided in the tax treaties are generally identical for the treaty partners. These authors argue that the incremental decline in the tax rates is preferable to an application of the lowest tax rates at the beginning of the tax treaty because lower tax rates are not "self-enforcing". Further, they note that the irreversible characteristic of bilateral FDI makes the gradual decrease in tax rates more desirable in order to have a retaliation tool to deter any sort of deviance from one of the contracting partners. They also claim that tax treaty partners could reach a Pareto-optimal tax rates in a dynamic setting in the long run contingent upon the asymmetry in FDI flows of the partners. Interestingly the authors note that it is less likely that a tax treaty will be signed between two countries that differ significantly in terms of FDI flows (asymmetry of FDI). This finding is a perfect illustration of the disadvantage in which developing countries find themselves when they conclude tax treaties with developed countries that are mostly capital exporters. The revenue sharing conflict that might result in case of tax treaties involving developing and developed countries is less acute in the case of tax treaties between developed countries. This disadvantage is

alleviated in the UN model tax treaties that grant taxation jurisdiction to host countries contrary to the OECD model

Not only costs are associated with tax treaties; there also some benefits associated with the signing of DTTs. Entering a Tax Treaty can help reduce tax evasion when contracting parties share information and will ultimately reduce the administrative costs incurred with tax enforcement and tax collection. This is true under the assumption that each party has the incentive to cooperate mutually with other countries by providing them with the information and mutual assistance needed as often stated in tax treaties. First and foremost, tax treaties when concluded along with reasonable tax rates and an upfront clarification of potential divergences with domestic tax laws can create a safe and friendly business environment for potential investors. Sometimes treaties may constitute a step toward an establishment of good international and diplomatic relations with other countries.

3.3 Double Tax Treaties: Definitions – Functions - Recent Developments

3.3.1 Definition and Functions of Double Tax Treaties

Double Tax Treaty (DTT) refers to an agreement signed between two sovereign countries to avoid double taxation. DTTs are believed to achieve the following purposes: (i) reduce or eliminate double taxation of the same tax payer, (ii) promote commerce and investment at the international level, (iii) provide a fair share of tax revenues between the contracting parties and (iv) combat fiscal fraud and tax evasion. Subsequent to the preceding purposes of DTTs, the following key functions are commonly associated with DTTs. I will focus on the main functions that DTTs perform, as found in the literature.

The first main function of DTTs is the standardization of tax definition in the jurisdictions of contracting countries. It's important to note that with the advent of globalization cross-boarder investments are now taking place either under international enterprises or multinational enterprise. The later operates through a subsidiary company located in the source country while the former operates through "a Permanent Establishment" in the host country (source country). Host countries generally tax income or profits that foreign or multinational companies generate within their territory. Harmonization of definition is therefore important in the sense that any divergence in the way countries view and define the concept of "permanent establishment" will generally result in double taxation and render capital flows ineffective as well. In general, domestic laws of most host countries provide conditions governing taxation of income or profits generated on their soil by foreign or multinational companies. Additionally any existing tax treaty between the two countries will then apply to envisage the possibility of tax relief. According to Article 7 (1) of the OECD model of Tax Treaty business profits earned in a source country should be taxed only in the residence country unless the taxpayer has a PE in the source country through which the profits were made. Under the OECD model, the concept of PE is defined according to a "basic-rule" PE, a construction PE and an agency PE. The UN model of Tax Treaty contrary to the OECD model expands the scope of PE and attributes greater taxing rights to the source state (Art.5). Another difference from the Article 7 of the OECD model is the so-called "limited force of attraction rule" which provides taxation of profits related to sales of similar goods or merchandise in the source country.

Another objective that DTTs can achieve is the reduction of transfer pricing[35] and the elimination of tax avoidance. In fact some multinational firms have tendency to exaggerate their costs (lower profits) and manipulate their prices in order to transfer revenue to low tax locations. Taxing authorities of the contracting states of a tax treaty can set rules to combat this phenomenon. The typical way of dealing with the transfer pricing issue in a treaty is to put in a place a method for the determination of a price close to the market price that would be charged to a third party or independent customer in a similar transaction (arm's length market value). By the same token additional rules are put in place to allocate income, also to resolve potential conflicts between concerned parties on the other. The ultimate goal here is to create an environment with tax certainty for firms to conduct business in. These agendas are also aided by the promotion of exchange of tax information and collection assistance in the rules. There are generally two types of information exchange, broad or large, depending on the tax treaty model. Exchange of information can be mutually beneficial for both contracting states in the sense that it can help reduce the costs incurred by tax authorities for tax enforcement.

Avoidance of treaty shopping is another objective that tax authorities of different countries are concerned with. Treaty shopping occurs when firms seek to the maximize benefits from DTT provisions in a conspicuous manner. It refers to "a situation where a person who is not entitled to the benefits of a tax treaty makes use of an individual or a legal person to obtain those treaty benefits that are not available directly" (Rogers-Glabush J, 2009). Tax treaties through tax coordination by capital exporting countries can

[35] Transfer pricing is the setting of the price for Goods, Services and intangible property bought and sold between associated enterprises, or between different parts of the same enterprise located in different jurisdictions (K. Homes, International Tax policy and Double Tax Treaties 2014, page 214)

help achieve this goal. The typical rule is that, when more than half of a corporation's stock is controlled by a third country's residents, treaty benefits should be to limited (Doernberg, 1997). Since treaty shopping ultimately erodes domestic tax bases, countries are now introducing provisions in their domestic laws and DTTs to prevent companies from shopping for tax treaties. The issue of treaty shopping has been a major concern for U.S. authorities who have recently revised previous tax treaties with their partners. Lastly, and perhaps the most important, function of DTTs is to eliminate international double taxation via the rules in the treaties that affect withholding taxes collected on foreign investment benefits.

3.3.2 Trends and Recent Developments on Double Tax Treaties.

The first few tax treaties signed were among continental European countries in the 1945. Since the introduction of the first Tax Treaty in 1899, the number of DTTs concluded has been growing steadily. Approximately 70 DTTs were concluded by 1945 following the establishment of the new OEEC model tax treaty. The World Investment Report (1998) had estimated the total number of DTTs to 1794 covering almost 180 countries. By that time many European countries (UK, France and others) were already very active in DTT signing. For instance, France had signed tax treaty with more than 100 countries. The expansion of DTT conclusion has gone through different paces. In the 1960s about an average of 18 DTTs was signed annually while the annual averages of DTTs concluded in the 1980s and 1990s reached 58 and 80 respectively. An annual average of 92 DTTs was signed more recently during the period 2004-2007. A total number of 2,805 DTTs was signed by 2008 compared to a total of 1,844 DTTs that had been signed by the end 1998 involving 182 countries (UNCTAD IIA MONITOR No. 3). There are actually more

than 3,000 DTTs in force worldwide and about 84 DTTs were signed in 2014 (WIR 2015). A comprehensive worldwide network of tax treaties would require between 16,000 and 18,000 DTTs depending on the number of independent tax authorities.

The majority of DTTs are signed between developed countries while very few tax agreements are established between developed and developing countries. Easson (2000) notes that one could characterize the expansion of Tax treaties in three waves. Until the 1970s tax treaties were mostly signed among developed countries. Also developing countries have also been active in signing tax agreements among themselves, but in a lower degree. Countries in Africa and Asia had entered into tax agreements around 1970 with the intent to attract considerable amount of FDI. In the 1980s some socialist countries made their entrance into DTTs negotiation and the 1990s saw the appearance of transition economies and newly independent states of the former Soviet Union. The Latin American and Middle East countries seem to belong to the last wave of countries to come to the tax treaty arena.

Even though the United States has developed its tax treaty model lately compared to OECD and UN models, it has been very active in DTTs signing. As of December 1998, the U.S. and U.K. topped the list of developed countries that signed the most DTTs, followed by France, Sweden, and Luxembourg. Compared to other developed countries, the U.S. has created very few treaties with other developed countries, even fewer with developing countries. Developing countries have not been indolent in signing DTTs. Between 2005 and 2006, about one third of all DTTs concluded were among developing countries, and only one fifth of them were signed between developed and developing countries.

3.4 Determinants of Tax Revenue

In the economic literature very few papers have investigated the determinants of tax revenue. The rare papers that examined the question have focused on developing countries. Lotz and Morss (1967) is one of the first papers dealing with issue related to tax revenues. Analyzing the tax efforts they find that income per capita and openness to trade measured by the sum of imports and exports in percent of GNP have a positive and significant effect on tax ratios (defined as tax revenues over GNP) for low-income countries while the same two variables appear insignificant in the contest of high-income countries. In the same vein, Chelliah et al. (1975) built on a previous study by Chelliah (1971) to explore the tax ratios and tax efforts in developing countries. The authors note that income level, degree of openness and the structure of the economy (i.e GDP composition) are great explanatory variables choice in evaluating the tax effort of developing countries. They argue that the mining and agricultural sectors seem to play a major factor in explaining the tax ratios although the agricultural was found difficult to levy tax on. Also, many other authors (Bah 1971; Tait et al. 1979) came to a comparable conclusion. Piancasteli (2001) appears to be one the rare studies that expanded the sample of countries to include developed countries. He confirms that variables such as income per capita, openness to trade and share of agricultural sector in GDP are determinant in explaining tax ratios while mining sector share in GDP and quasi-money (M2) appear insignificant.

With respect to Openness to trade, Tupy (2005) notes that the average rate of applied tariffs rate has been in decline since the mid-1980s and argue that not all countries are equally equipped to take full advantage of the benefits from trade liberalization and middle-income countries are the great beneficiaries of trade liberalization. This remark may justify Baunsgaard and keen's findings that openness affects differently countries depending on their level of development. In fact Baunsgaard and Keen (2010) found a positive and significant effect of openness on tax revenue for middle and low-income countries while a negative and insignificant effect is uncovered for high-income countries.

In addition to these traditional determinants of tax revenues, an important element to account for is the macroeconomic environment in which tax revenues are collected. In fact, inflation may have a negative effect on tax revenues because an inflationary environment will more likely cause businesses or households to transfer their wealth to less taxable assets and avoid the negative effects of inflation. Tanzi (1977) argues that there are many channels through which inflation may cause a reduction in tax revenues: lagged tax payments, excise taxes on different products, and a reduction in the tax base. Also, the financial development of a country measured by its degree of monetization reflects the extent of the money-based transactions and hence an important source of tax revenues in a modern economy. Tanzi (1992), examining developing countries during the period 1978/88 argues that in addition to inflation, other macroeconomics conditions such as disequilibria in the balance of payments had negatively affected the tax revenues in years subsequent to 1982. Furthermore he argues that, in order for developing countries to adequately service debts they might resort to taxation. This justifies why the debts level

might also be a potential determinant of tax revenue. The author also argues that the explanations as to why agricultural sector affects taxation might reside in supply and demand sides. More agricultural sector tends to phase with fewer public spending and therefore less need for taxation. The sector is already subject to massive indirect taxation so that possibilities for explicit taxes are very slim. As a result, Tanzi notes that the share of agriculture in GDP should be negative associated with tax revenue.

Also factors such as institutional quality of countries are believed to significantly influence tax revenue. For instance, Ghura (1998) argues that factors such as structural reforms, government's provisions of public goods, corruption, and external environment (captured by debt and grants in percentage of GDP) may explain tax revenues. He found strong evidence that structural reforms have a positive and significant effect on tax revenues, while the level of corruption has a significant deterring effect on tax revenues.

Many other studies have investigated the effects of a specific variable of interest on tax revenues. In the same vein, Leuthold (1991) found that the variable, grants and gifts, in percentage of GDP has a positive and significant effect on tax revenues. In an extended regression, Clist and Morrissey (2011) found that loans have a positive and significant effect on tax revenues across all specifications and time period estimations, while the effect of grants on tax revenue shift from significant and negative to positive and significant (or insignificant) depending on the sub-period considered. They found no evidence that the shift in the sign of the relationship between grants and tax revenue is due to a time effect. They did find some evidence of a break for the post 1984 period. Also, Baunsgaard and keen (2010) analyzing the effect of trade liberalization on tax revenue controlled for value added tax (VAT). They found that countries that have VAT

in place recover more strongly from the loss of tax revenue due to trade liberalization. Related to the same topic is the study by Keen and Lockwood in 2010 that pointed out that, adding a VAT dummy variable to the tax effort equation yields a positive and significant effect on tax revenue in percentage of GDP.

3.5 Data and Methodology

3.5.1 FDI and Tax Treaties in OECD countries

The objective in this paper is to investigate whether tax treaties lead to a loss of tax revenues in OECD countries. The main argument rests on the fact that if treaty partners present some asymmetry in terms of FDI a tax treaty will lead to a loss of tax revenue (Easson, 2000). In this section I look in detail at the FDI inflows of all countries in the sample to see if there is any asymmetry in the FDI data over the period 1990-2010. Figures 1 and 2 below show the total FDI inflows.

Among the countries in the sample, the United States (25.66%), UK (12.14%), Belgium (6.51%), Germany (6.39%), and Netherland (4.98%) represent the top 5 in terms of countries that receive the most of foreign investment over the period 1990-2010. The United States alone has received more than 25% of all total FDI inflows and these top 5 countries combined accounted for over 55% of total inward FDI during the same period. This means that the top 5 countries received more than hath of the total FDI coming to the region while the remaining 32 countries share less than half of the total FDI inflow. In terms of FDI outflow the top 5 countries which are the United States (22.84%), UK (12.95%), Germany (8.55%), France (8.46%) and Netherland (6.32%) amounted about 60% of total FDI outwards. These figures clearly show that very few countries (five or

less) share the great majority of FDI inflows and outflows in the sample while the bulk of the countries in the sample share only a small portion of the investments.

Figure 3. 1Total FDI inflows over the period 1990-2010

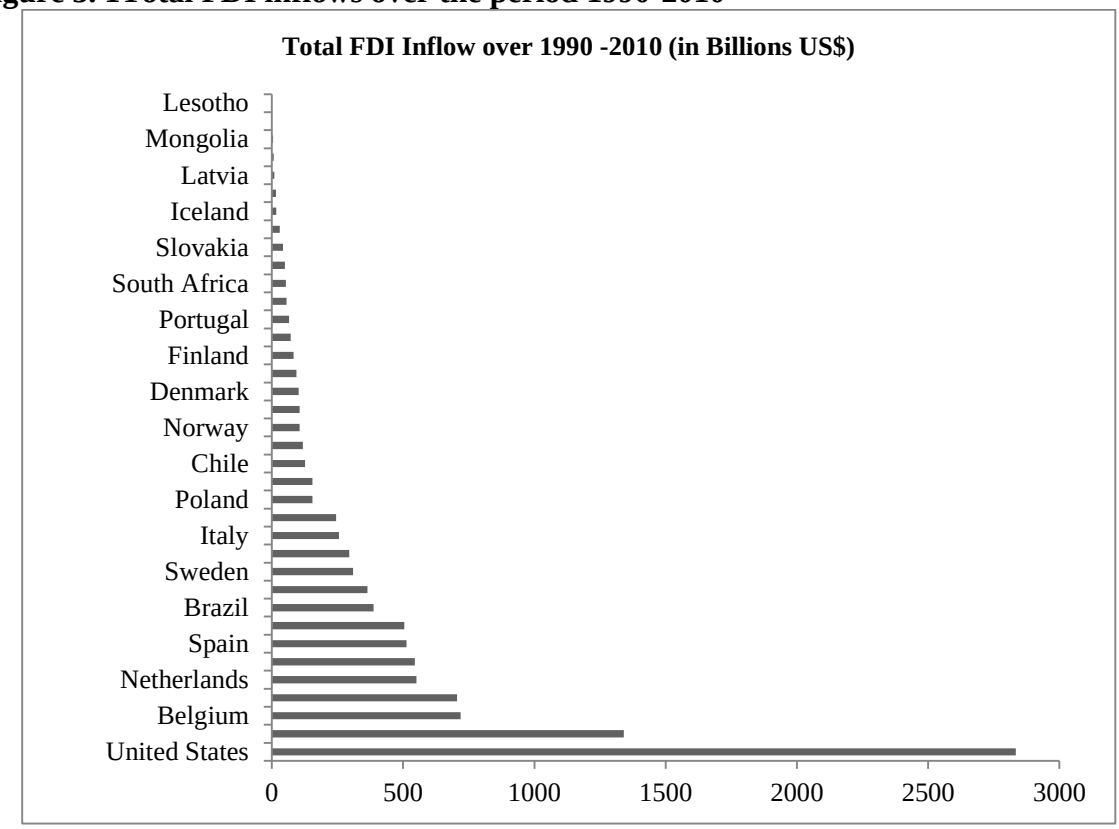


Figure 3. 2 Distribution of countries by DTTs

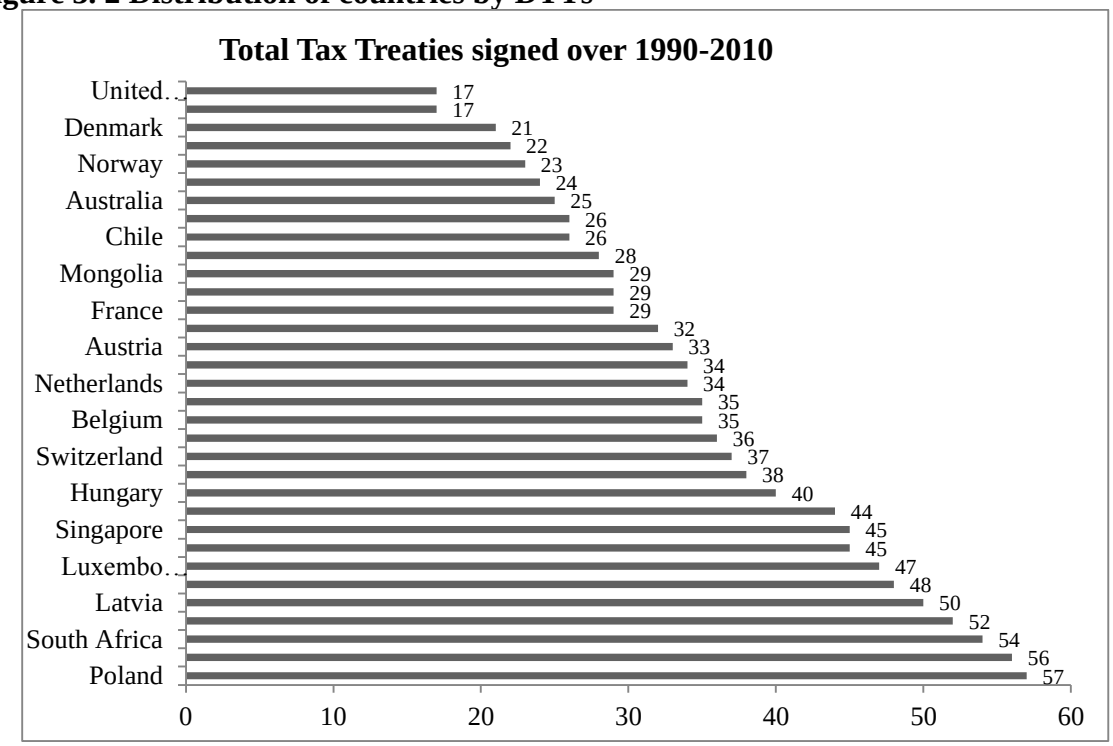


Figure 2 above presents some countries from the sample by importance in terms of the total number of DTTs signed. The top five countries that are more prolific in signing DTTs are Poland (57), Bulgaria (56), South Africa (54), Spain (52) and Latvia (50). It also shows that developed countries such as US, UK are not necessarily dominant in terms of DTTs signed as they ended up at the queue of the distribution on the graph even though they attract a large amount of FDI as shown in figure 1. There seems to be no correlation between the level of development and the number of DTTs signed on the one hand, also between the amount of FDI and the number of DTTs concluded on the other hand. One thing that strikes out from comparing figures 1 and 2 is that the distribution of the number of tax treaties signed by countries seems less asymmetric compared to the distribution of FDI.

3.5.2 Descriptive Statistics

The data on control variables are collected from the World Development Indicators database and the data on Double Tax Treaties are compiled from the UNCTAD website. The dependent variable as mentioned above is the tax revenue. The tax revenue is made up of tax on income, profits and capital gains, which is levied on individuals and corporates. The independent variables include agricultural, industrial values added in percentage of GDP, openness to trade (sum of import and export values in percentage of GDP), GDP per capita in constant price of 2005, inflation, and Value added tax (VAT). To create the DTT variables I undertook the daunting task of enumerating all the tax treaties signed by OECD countries by exploiting the country specific pdf files publically

published on UNCTAD website. These files provide an exhaustive list of tax treaties on income and capital that each country had signed worldwide up until 2010.

Table 2 shows the descriptive statistics for a sample of 37 countries over the period 1990-2010. Tax revenue (in level), the dependent variable, presents a minimum value of 0.0003 and a maximum of 2,96058.5 billion dollars, and the mean value is 1,7736.82 billion dollars. Denmark is the country with the highest tax receipts in percent of GDP while Chile is the one with the lowest tax revenue in percent of GDP. The minimum inflation is about -9.62, which represents the inflation rate in Lesotho in 2001. Peru with an inflation rate of 7481.66 in 1990 has the highest inflation rate. The average value of inflow of foreign investment is 14393.49 million of dollars US. Ireland registered the highest disinvestment (of -31689.30 million of dollars US) in 2005 while US had the highest inflow of investment (314007.00 million of dollars US) in 2000. The variable of interest which is DTTs has an average of 1.53, meaning that over the period 1990-2010 a typical country in the sample has signed in average at least one tax treaty with other countries worldwide. The weighted version of the variable of interest is DTTsW which is defined as DTTs times the share of FDI inflows in the total world FDI inflows. The minimum value -0.07 of the weighted DTTsW results from the negative FDI inflow registered in the FDI inflow variable. The dependent variable in this setting is the total tax revenue in level. It includes all levels of tax: taxes on income, profits, capital gains; taxes on Goods and Services; Social Security Contribution; taxes on payroll and workforce; taxes on property and other taxes.

Table 3. 1 Descriptive statistics, 1990-2010

	Variable	Obs	Mean	Std. Dev.	Min	Max
Dep. Vars	Tax_Rev (in % of GDP)	777	25.81	7.67	9.36	58.73
	Tax_lev (in Billions $ US)	777	17736.82	37021.45	0.0003	296058.5
Expl. Vars	DTTs	777	1.53	1.72	0	10
	DTTsW	777	0.03	0.06	-0.07	0.76
	AGRI	777	4.41	4.92	0.04	40.98
	INDU	777	29.19	5.88	12.81	49.20
	OPEN	777	91.23	66.58	15.16	439.66
	GDPpc_2005	777	24998.90	18317.67	510.67	87772.69
	Pop (in Millions)	777	32.10	55.50	0.22	309.00
	Infl	777	30.97	311.10	-9.62	7481.66
	Fdi_in (in Millions $ US)	777	14393.49	32768.45	-31689.30	314007.00
	Fdi_out (in Millions $ US)	777	18075.33	40387.73	-35783.18	393518.00
	VAT	777	0.86	0.35	0	1

Notes: Tax_Rev refers to the tax revenue in percentage of GDP and Tax_lev refers to the total amount of tax revenue in level in billions of US dollars.

3.5.3 Methodological Approach

Several authors (Sen Gupta, 2007; Baunsgaard et al. 2010) have explored issues related to tax revenues using a dynamic panel data methodology. For instance, Baunsgaard et al. (2010) investigated the impact of trade liberalization on domestic tax revenues in a dynamic panel data setting. Adopting a similar approach I analyze the effects of double tax treaties on tax revenues. Controlling for the habitual determinants of tax revenues as found in the literature, I expect to uncover whether Tax Treaties have any effects on tax revenues. The sample data will include 37 countries over the period 1990-2010. The choice of this time period is essentially driven by data availability on DTTs and the sample countries are chosen on the basis of ease data collection on tax revenue of good quality in these countries. The specification then takes the following form:

$$Tax_Rev_{it} = \alpha + \beta Tax_Rev_{it-1} + \gamma_k DTTsW_{it-k} + Z'_{it}\theta + \mu_i + \vartheta_t + \varepsilon_{it} \quad (1)$$

Where $DTTsW_{it-k} = DTTs_{it-k} * W_{it} = DTTs_{it-k} * (FDI_Infl_{it}/WFDI_Infl_t)$ is the ratio of FDI inflow of country i in a year t over the world FDI inflows in a year t; i= 1,…,N and t = 1,…,T and Tax_Rev_{it} represents the amount (in US dollars) of total tax revenue collected by a country i in a year t, Z_{it} is the set of control variables including GDP per capita (at 2005 US dollar price), Openness to trade (sum of import and export in percentage of GDP), AGR (value added from the agricultural sector), IND (value added from the industrial sector), inflation (annual variation in consumer price index). I also include VAT (Value-added tax) which is dummy variable taking 1 if a country i has a VAT in place in year t.

$DTTs_{it-k}$ is the number of tax treaties that a country i has signed in period t-k for k=0,1…,K where K is the lag length. The weight W is introduced to account for the fact that the amount of FDI generated in a country in a year is likely the result of current or previous tax treaties signed; the parameters of main interest are γ_k and I expect the remaining parameters related to the control variables to take on values consistent with what i described in the literature review. The parameters γ_k describe the impact of weighted tax treaties on log of tax revenue levels. The contemporaneous effect of weighted tax treaties is captured γ_0 and the parameters γ_k capture the lagged effects of weighted tax treated on tax revenue. The variable μ_i denotes the individual fixed effects while ϑ_t captures temporal shocks and ε_{it} the idiosyncratic error terms.

The introduction of the lagged dependent variable plays at least two major roles in this setting. First, it allows capturing the persistence in tax revenue performance. It's

common in tax revenue studies to note a serial correlation in the error terms revealing that revenue performance is highly persistent overtime. Therefore the presence of the lagged dependent variable allows alleviating the serial correlation issue. Second, the introduction of the lagged tax revenues allows for plausible dynamics in policy adjustment (Baunsgaard and Keen, 2010).

Drawing from the literature review I expect per capita GPD to have a positive effect on tax revenue. Higher economic performance should translate into higher tax revenues. The variable AGR is expected to have a negative effect on tax revenue due to the difficulty of raising additional explicit tax form the agricultural sector. Since the industrial sector is more organized, it is more easy collect tax on. Therefore, I expect a positive effect on tax revenue of the variable IND. The effect of openness to trade on tax revenues is not clear-cut in the literature and largely depends on the level of development of countries. Baunsgaard et al, (2010) found a positive and significant effect of openness on tax revenues for low and middle-income countries while a negative and insignificant effect is found for high-income countries. Consequently, I expect a negative effect of openness to trade on tax revenue. Inflation is expected to have a negative effect on tax revenues. In an inflationary environment, firms and households may develop strategies to counter the corrosive effect on their wealth.

With respect to the expected sign of the variable of interest (DTTs) on tax revenue the main argument rests on Easson's view that tax treaty leads a loss in tax revenues in developing countries where the asymmetry with the developed countries is very marked in terms of flow of foreign direct investment. As stated earlier, the figures show an

asymmetry in terms of inflows of FDI of countries included in the sample. Therefore it is reasonable to expect a loss of tax revenues as well.

There are some issues surrounding the estimation of equation (1). First, there is a possibility that the unobserved individual characteristics μ_i might be correlated with the observed characteristicsZ_{it}. There may be some time-invariant variables such as the legal tax system that is correlated with the export revenues for example or other covariates. Secondly, some of the variables in the specification are macroeconomic series; there is a possibility of non-stationarity of those variables. To get around those issues, it will be more appropriate to estimate equation (1) in differences, which gives the following specification;

$$\Delta Tax_Rev_{it} = \beta \Delta Tax_Rev_{it-1} + \gamma_k \Delta DTTsW_{it-k} + \Delta Z'_{it}\theta + \Delta\vartheta_t + \Delta\varepsilon_{it} \qquad (2)$$

Also there is an endogeneity issue in estimating equations (1) and (2). It could be easily argued that there exists a feedback effect between tax revenue and per capita GDP. Great economic performance should create greater conditions to levy more tax revenue (and vice versa). Additionally, Egger et al. (2006) analyzing the effect of tax treaties on foreign investments pointed out that countries enter into tax agreements if doing so is mutually beneficial to treaty partners in terms of welfare gains. They conclude that tax treaty should be considered endogenous at least on the general equilibrium analysis ground. To account for endogeneity issues, I employ the system GMM methodology that uses the lagged variables as instruments. Since one of the purposes of tax treaty is to attract foreign direct investment, one can reasonably argue that a tax treaty signed for instance between US and Mexico in a given year will result in a disproportionate flow of

FDI between the two countries. Therefore instead of using just the number of tax treaties signed by a country in a given year as variable of interest, the interest should be on the number of tax treaties weighted by the inflow of FDI. In addition to the possibility of having a contemporaneous effect of tax treaties in the economy, it is likely to also have lagged effects. I will explore different lags of weighted DTTs in my investigations.

3.6 Estimation Results

3.6.1 Preliminary Results

I started out by investigating the effect on total tax revenues (in level) of weighted tax treaties (DTTsW) of countries that have concluded tax treaties with other countries regardless of the origin of the foreign contracting partners. The dependent variable here is the log of total tax revenue beforehand expressed in billions of US dollars and the variable of interest is the weighted DTTs signed in any given year (DTTsW). To decide between the random effect and the fixed effect estimations I performed the Hausman test and the results[36] decide in favor of a fixed effect model. Since a contemporaneous effect of tax treaties on tax revenue seems less realistic, I explored the effect of different lags of weighted tax treaties on total tax revenue (at least 5 lags up to 10 will be considered). Contrary to most previous studies[37] that failed to find a positive effect of GDP on tax revenue, the results show a positive and highly significant effect of GDP per capita at constant price of year 2005 on tax revenue. The results also show a negative and highly significant effect of log of openness to trade on log tax revenue. This finding may seem

[36] By choice the Hausman test results are not reported.
[37] Baunsgaard and Keen (2010) found a negative and insignificant effect of logGDPpc on domestic tax revenue.

surprising at first, but previous studies have not reached a consensus as to whether more openness leads to more tax revenue. Openness is defined as the sum of import and export in percentage of GDP. The negative and significant effect of openness on tax revenue may be indicative of the reduction of tariffs or trade barriers, which in turn lowers tax revenue. This result is consistent with Baunsgaard and Keen (2010). With respect to inflation, the results show a negative and highly significant effect on tax revenue reflecting thus the adverse effects of higher inflation in the SGMM estimation (see column 6 of table 2).

The other control variables, shares of agriculture and industrial in percentage of GDP, have the expected signs. The agricultural share has a negative and significant effect on Tax revenue in the FE estimation. This is consistent with Tanzi's (1992) view that countries with large share of agricultural sector are likely to be associated with less need of government spending. Also not surprisingly, the share of industry has a positive and significant effect on tax revenues reflecting the importance of the industrial sector in the GDP.

Table 3. 2 Fixed Effects and SGMM estimation results with different lags

logTaxLev (t)	FE Estimations			SGMM Estimations			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	DTTsW(t-3)	DTTsW(t-5)	DTTsW(t-8)	DTTsW(t-1)	DTTsW(t-3)	DTTsW(t-5)	DTTsW(t-7)
logTaxLev_1	0.658***	0.0123***	0.618***	0.798***	0.706***	0.0109***	0.665***
	(0.00370)	(0.0268)	(0.0599)	(0.0428)	(0.0570)	(0.128)	(0.239)
DTTsW	0.153***	0.187***	0.140***	0.480***	0.491**	1.887***	1.060*
	(0.0839)	(0.0840)	(0.0331)	(0.250)	(0.241)	(0.594)	(0.591)
logGDPpc05(t)	0.318**	0.810***	0.413**	0.185***	0.284***	1.008***	0.330***
	(0.126)	(0.227)	(0.175)	(0.0482)	(0.0662)	(0.139)	(0.251)
logAGRI(t)	0.101	-0.200***	-0.0919	-0.0118	-0.00976	0.00943	0.00934
	(0.151)	(0.0731)	(0.0589)	(0.0164)	(0.0241)	(0.0724)	(0.0208)
logIND(t)	0.287*	0.666***	0.444***	0.0801**	0.128**	0.329**	0.127
	(0.155)	(0.237)	(0.141)	(0.0359)	(0.0508)	(0.128)	(0.0788)
logOPEN(t)	-0.271**	-0.452***	-0.240**	-0.0618**	-0.0822**	-0.208**	-0.0808
	(0.115)	(0.140)	(0.103)	(0.0290)	(0.0368)	(0.0955)	(0.0557)
Infl(t)	-0.00261	-0.00983	-0.283	-0.00682	-0.00408	-0.0549***	-0.0202*
	(0.00619)	(0.00945)	(0.280)	(0.00674)	(0.00602)	(0.0173)	(0.0117)
VAT(t)	0.0584	0.166**	0.109	0.0728**	0.0638	0.223**	0.118**
	(0.0794)	(0.0771)	(0.0718)	(0.0336)	(0.0551)	(0.112)	(0.0498)
logPop(t)	-0.192	-0.507	0.156	0.172***	0.256***	0.903***	0.297
	(0.201)	(0.370)	(0.222)	(0.0464)	(0.0637)	(0.138)	(0.221)
Constant	3.396*	10.11***	0.0699	-0.541**	-0.963**	-3.583***	-1.179
	(1.851)	(3.410)	(1.982)	(0.271)	(0.411)	(1.052)	(0.947)
Observations	666	592	481	740	666	592	518
Year FE	YES	YES	YES	YES	YES	YES	YES
# of Country	37	37	37	37	37	37	37
R-squared	0.746	0.920	0.958				
AR(1) P-value				0.303	0.303	0.071	0.007
AR(2) P-value				0.407	0.218	0.951	0.279
Over-Identification P-value				0.853	0.888	0.49	0.977
# of instruments				31	29	27	25

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The results above clearly show that weighted tax treaties (DTTsW) have a positive and significant effect on log of tax revenue regardless of the estimation methodology (Fixed Effects or System GMM). It is also worth mentioning that tax treaties do not affect contemporaneously tax revenues and that the effects only appear one year following the implementation of tax treaties (see column 4 of the SGMM results in table 2 above). Also, the effects on tax revenue seem to last up to 8 years and then vanish the following years.

These findings are somewhat counterintuitive in the sense that one might reasonably think that once treaty partners agree to lower income and profits tax rates to lessen the tax burden on foreign investors and avoid double taxation, this will naturally result in a loss of tax revenue but the findings seem to say otherwise.

3.6.2. Diminishing Effect of Double Tax Treaties on Tax Revenues

In the previous section, I explored the effect of tax treaties on log tax revenues using weighted DTTs signed by a country in any given year as variable of interest. But the results have not lived up to the expectations that tax treaties are detrimental to tax revenues of tax treaty partners. In this section, I further the investigations by questioning whether there is a diminishing effect following the positive effect of tax treaties on tax revenues uncovered in the previous section. To do so, I include the square of the weighted tax treaty variable in equations (1) and (2). I then estimate the following equation (1') using FE and System GMM.

$$Tax_Rev_{it} = \alpha + \beta Tax_Rev_{it-1} + \gamma_{1k} DTTsW_{it-k} + \gamma_{2k} DTTsWsq_{it-k} + Z'_{it}\theta + \mu_i + \vartheta_t + \varepsilon_{it} \quad (1') \qquad where\ DTTsWsq = DTTsW * DTTsW$$

Following the results from previous section I expect the parameters γ_{1k} to be positive and if there was any "diminishing effects" the parameters γ_{2k} should be negative. In fact, there is some income and profits tax rates aspects imbedded in tax treaties texts. As more and more tax treaties are signed between countries there might be a diminishing effect following the positive effect observed. Therefore the link with the Laffer curve with respect to the effect that tax treaties have on tax revenue is worth consideration.

I explored different lags (up to 10 lags) of weighted tax treaties and square of weighted tax treaties in my specifications. But the results are only reported for the cases

where I noticed a significant effect of tax treaty. The results reported on table 3 show that while most control variables continue to be significant and have the expected signs, the weighted tax treaties variable also continue to have a positive and significant effect on tax revenue following the second year of implementation of tax treaty (see column 5 of table 3). The results also seem to show that the Laffer effect does not kick in immediately. In fact, while the positive effect of tax treaties takes about a year or two to appear, the negative effect on the other hand shows up much later. The FE and SGMM estimation results show that the diminishing effect of tax treaties on tax revenue takes about five to six years to set in. One possible explanation of why tax treaties might positively affect tax revenue as opposed to the negative effect foreseen by Easson (2000) is that lowering corporation tax rates might actually attract foreign companies. As a result, the surplus of profits generated from the tax reduction on income and capital can help build up their capital and reinforce their investment capacity.

Table 3. 3 Fixed Effects and SGMM with diminishing effects of DTTs

logTaxLev	Fixed Effects				System GMM		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	(t-3)	(t-6)	(t-7)	(t-8)	(t-2)	(t-3)	(t-5)
logTaxLev_1	0.659***	0.668***	0.650***	0.615***	0.791***	0.701***	0.0173***
	(0.00369)	(0.0486)	(0.0512)	(0.0598)	(0.0477)	(0.0591)	(0.186)
DTTsW	0.262**	0.213***	0.209*	0.220***	1.128**	1.298***	1.209**
	(0.101)	(0.0750)	(0.110)	(0.0791)	(0.655)	(0.459)	(0.666)
DTTsWsq	-0.0404	-0.0524**	-0.0357***	-0.0315***	-0.309***	-0.252***	-0.399*
	(0.0240)	(0.0205)	(0.0125)	(0.0260)	(0.247)	(0.165)	(0.228)
logGDPpc05	0.314**	0.254	0.304*	0.414**	0.197***	0.285***	1.029***
	(0.126)	(0.153)	(0.163)	(0.175)	(0.0551)	(0.0675)	(0.210)
logAGRI	0.101	-0.0800	-0.0852	-0.0911	-0.00751	-0.0123	0.0175
	(0.151)	(0.0483)	(0.0541)	(0.0581)	(0.0198)	(0.0231)	(0.0670)
logIND	0.291*	0.389***	0.404***	0.446***	0.0882***	0.132***	0.278**
	(0.154)	(0.131)	(0.136)	(0.141)	(0.0299)	(0.0505)	(0.140)
logOPEN	-0.276**	-0.175**	-0.186*	-0.243**	-0.0616**	-0.0893**	-0.175*
	(0.113)	(0.0837)	(0.0921)	(0.104)	(0.0293)	(0.0363)	(0.0985)
Infl	-0.00265	-0.00557	-0.00509	-0.288	-0.00748	-0.00479	-0.0569***
	(0.00618)	(0.00545)	(0.00555)	(0.280)	(0.00604)	(0.00591)	(0.0190)
VAT	0.0580	0.115*	0.112*	0.106	0.0724	0.0845*	0.172
	(0.0793)	(0.0651)	(0.0661)	(0.0737)	(0.0531)	(0.0510)	(0.142)
logPop	-0.187	-0.122	-0.0208	0.154	0.179***	0.257***	0.931***
	(0.200)	(0.186)	(0.205)	(0.218)	(0.0506)	(0.0654)	(0.190)
Constant	3.369*	2.555	1.591	0.123	-0.583*	-0.923**	-3.823***
	(1.843)	(1.709)	(1.875)	(1.955)	(0.310)	(0.420)	(1.005)
Observations	666	555	518	481	703	666	592
Year FE	YES	YES	YES	YES	YES	YES	FE
R-squared	0.746	0.957	0.957	0.958			
# of Country	37	37	37	37	37	37	37
AR(1) P-value					0.304	0.304	0.048
AR(2) P-value					0.399	0.277	0.818
Over-Identification P-value					0.99	0.961	0.144
# of instruments					32	31	29

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

3.6.3. Effect of Tax Treaty on Tax Structure

So far I have investigated whether double tax treaties signed between countries have any significant effect on total tax revenues of treaty partners using the weighted number of tax treaties signed in any given year as variable of interest. The fixed effect and dynamic SGMM estimations show a lasting positive and significant effect of weighted tax treaties on tax revenues starting from one year following the implementation of the tax treaty. I then tested for a diminishing effect par adding the squared tax treaty variable to my specifications. The results show that the diminishing effect sets in starting from the sixth year following the implementation of tax treaty.

In this section, I propose to retest the results using the total tax revenues stemming from income, profits and capital gains as dependent variable instead of using the total tax revenues that include other tax sources. This new dependent variable seems more appropriate because it is reasonable to think that tax treaties will affect total tax revenue through their effects on taxes on income, profits and capital gains which represent the true target of tax treaties. The results reported on table 4 show that some control variables, GDP per capita and value added of industrial sector are still significant. Also, the FE estimation results are consistent with the findings when the total tax revenue was used as dependent variable. I note a positive and significant effect of weighted tax treaties on tax revenue in the third year following the implementation of tax treaty. The diminishing effect appears with lag five (row 2 of table 4). Overall the SGMM estimations do not appear to perform very well when using income tax revenue as dependent variable. One plausible reason might be that the same control variables are not pertinent in explaining the new dependent variable (income tax revenue). An alternative robustness check of

these findings might be to use alternative source of tax treaties data such as the International Bureau of Fiscal Documentation (IBFD).

Table 3. 4 FE results with Income Tax revenue as dependent variable

	FE Estimations				
logIncTaxLev(t)	(1)	(2)	(3)	(4)	(5)
	(t-3)	(t-5)	(t-6)	(t-7)	(t-8)
logIncTaxLev(t-1)	0.665***	0.0545***	0.651***	0.634***	0.596***
	(0.00377)	(0.0512)	(0.0682)	(0.0776)	(0.0872)
DTTsW	0.251***	0.362**	0.242***	0.227**	0.253**
	(0.148)	(0.183)	(0.122)	(0.155)	(0.117)
DTTsWsq	-0.0310**	-0.0721**	-0.0537**	-0.0416**	-0.031**
	(0.0328)	(0.0286)	(0.0320)	(0.0158)	(0.0326)
logGDPpc05	0.379***	0.943***	0.367*	0.405*	0.468**
	(0.133)	(0.284)	(0.189)	(0.205)	(0.226)
logAGRI	0.128	-0.0954	-0.0421	-0.0523	-0.0637
	(0.154)	(0.102)	(0.0624)	(0.0682)	(0.0787)
logIND	0.328**	0.918***	0.440**	0.505***	0.603***
	(0.155)	(0.293)	(0.167)	(0.175)	(0.186)
logOPEN	-0.172	-0.287	-0.0546	-0.0575	-0.0846
	(0.123)	(0.183)	(0.124)	(0.138)	(0.153)
Infl	-0.00450	0.0263**	0.0120	0.0135	0.0596
	(0.00510)	(0.0106)	(0.00773)	(0.00852)	(0.533)
logPop	0.346**	0.911*	0.435**	0.562**	0.702***
	(0.152)	(0.506)	(0.207)	(0.215)	(0.244)
Constant	-2.609	-6.040	-3.709	-5.105	-6.478
	(1.456)	(4.626)	(1.823)	(1.922)	(2.221)
Observations	663	589	552	515	478
Year FE	YES	YES	YES	YES	YES
R-squared	0.747	0.875	0.929	0.927	0.924
# of Country	37	37	37	37	37

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

3.7 Conclusion

This paper investigates the effects of double tax treaties on tax revenues using a sample of 37 countries over the period 1990-2010. The paper is mainly motivated by the fact that the literature on double tax treaties generally claims that tax treaties are harmful to treaty partners especially when there is an asymmetry between countries in terms of flows of foreign direct investment. The fixed effect and system GMM estimation results reveal a bell shape relationship between tax revenue and tax treaties: a positive and significant effect coupled with a diminishing and significant effect of tax treaties on tax revenues. These findings caution tax treaty partners on the excessive use of double tax treaties as a means to attract foreign direct investment. This raises the question of the desirable number of tax treaties to conclude by different countries. Should countries sign more tax treaties or should they reduce the signing of double tax treaties? This question could be an interesting avenue for further research. Tax treaties are not homogeneous among countries. An avenue for future research is to account for the heterogeneity of tax treaties.

References

Aaron, Carl. "The contribution of FDI to poverty alleviation." *Report from the Foreign Investment Advisory Service presented at a conference in Singapore*. 1999.

Abbott, Kenneth W., and Duncan Snidal. "Hard and soft law in international governance." *International organization* 54.03 (2000): 421-456.

Acemoglu, Daron, Simon Johnson, and James A. Robinson. The colonial origins of comparative development: An empirical investigation. No. W7771. *National Bureau of Economic Research*, 2000.

Acemoglu, Daron, Simon Johnson, James A. Robinson, and Pierre Yared. 2008. "Income and Democracy."*American Economic Review*, 98(3): 808-42.

Adams, Samuel. "Foreign direct investment, domestic investment, and economic growth in Sub-Saharan Africa." *Journal of Policy Modeling* 31.6 (2009): 939-949.

Ades, Alberto, and Rafael Di Tella. "Rents, competition, and corruption. *"American Economic Review* (1999): 982-993.

Aitken, Brian J., and Ann E. Harrison. "Do domestic firms benefit from direct foreign investment? Evidence from Venezuela." *American Economic Review* (1999): 605-618.

Alfaro, Laura, SebnemKalemli-Ozcan, and VadymVolosovych. "Why doesn't capital flow from rich to poor countries? An empirical investigation." The Review of Economics and Statistics 90.2 (2008): 347-368.

Allee, Todd, and Clint Peinhardt. "Contingent credibility: The impact of investment treaty violations on foreign direct investment." International Organization 65.3 (2011): 401-432.

Alonso, José Antonio, and Carlos Garcimartín. "The determinants of institutional quality. More on the debate."*Journal of International Development* 25.2 (2013): 206-226.

Arellano, Manuel, and Stephen Bond. "Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations."*The Review of Economic Studies* 58.2 (1991): 277-297.

Azemar, Celine, et al. "Market familiarity and the location of south and north MNEs." *Economics & Politics* 24.3 (2012): 307-345.

Baltagi, Badi. Econometric analysis of panel data.John Wiley & Sons, 2005.

Baunsgaard, Thomas, and Michael Keen. "Tax revenue and (or?) trade liberalization." Journal of Public Economics 94.9 (2010): 563-577.

Beck, Thorsten, AsliDemirgüç-Kunt, and Ross Levine. "Law, endowments, and finance." *Journal of Financial Economics* 70.2 (2003): 137-181.

Booth, Laurence, et al. "Capital structures in developing countries."*The journal of finance* 56.1 (2001): 87-130.

Bobo, Lawrence, and Frederick C. Licari. "Education and political tolerance testing the effects of cognitive sophistication and target group affect."*Public Opinion Quarterly* 53.3 (1989): 285-308.

Bown, Chad P. "On the economic success of GATT/WTO dispute settlement." *Review of Economics and statistics* 86.3 (2004): 811-823.

Breuss, Fritz. "WTO dispute settlement from an economic perspective. More failure than success?" (2001).

Busch, Marc L., Eric Reinhardt, and Gregory Shaffer. "Does legal capacity matter? A survey of WTO Members." *World Trade Review* 8.04 (2009): 559-577.

Busse, Matthias, and Steffen Gröning. "Does foreign aid improve governance?"*Economics Letters* 104.2 (2009): 76-78.

Clist, P., & Morrissey, O. (2011). Aid and tax revenue: Signs of a positive effect since the 1980s. *Journal of International Development, 23*(2), 165-180.

Canning, David, and Marianne Fay. "The effect of infrastructure networks on economic growth." New York: Columbia University, Department of Economics (1993).

Chang, Pao-Li. "The evolution and utilization of the GATT/WTO dispute settlement mechanism." (2002).

Chang, Ha-Joon. "Institutions and economic development: theory, policy and history."*Journal of Institutional Economics* 7.04 (2011): 473-498.

Chelliah, R. J., Baas, H. J., & Kelly, M. R. (1975). Tax ratios and tax effort in developing countries, 1969-71. *International Monetary Fund Staff Papers, 22*(1), 187-205.

Chong, Alberto, and Cesar Calderon. "Causality and feedback between institutional measures and economic growth."*Economics & Politics* 12.1 (2000): 69-81.

Chong, Alberto, and Luisa Zanforlin. "Law tradition and institutional quality: some empirical evidence†." *Journal of International Development* 12.8 (2000): 1057-1068.

Daniels, Ronald J., and Michael Trebilcock. "The Political Economy of Rule of Law Reform in Developing Countries."*Mich. J. Int'l L.* 26 (2004): 99.

Daniels, Ronald Joel. Defecting on development: bilateral investment treaties and the subversion of the rule of law in the developing world. University of Toronto, Faculty of Law, 2004.

Demir, Firat. "Effects of FDI Flows on Institutional Development: Does It Matter Where the Investors are from?" *World Development* 78 (2016): 341-359.

Dolzer, Rudolf, and ChristophSchreuer. Principles of international investment law.*Oxford University Press*, 2008.

Downs, George W., David M. Rocke, and Peter N. Barsoom. "Is the good news about compliance good news about cooperation?" *International Organization* 50.03 (1996): 379-406.

Easson, A. (2000). Taxation of partnerships in canada. *Bulletin for International Fiscal Documentation, 54*(4), 157-172.

Egger, Peter, et al. "The impact of endogenous tax treaties on foreign direct investment: theory and evidence." *Canadian Journal of Economics/Revue canadienne d'économique* 39.3 (2006): 901-931.

Egger, H., Egger, P., & Grossmann, V. (2006). Does capital mobility promote economic growth? the link to education. *Journal of Financial Transformation,* (17), 28-31.

Emran, M. S., & Stiglitz, J. E. (2005). On selective indirect tax reform in developing countries. *Journal of Public Economics, 89*(4), 599-623.

Fisman, Raymond, and Roberta Gatti. "Decentralization and corruption: evidence across countries."*Journal of Public Economics* 83.3 (2002): 325-345.

Franck, Susan D. "Rationalizing costs in investment treaty arbitration." Wash. UL Rev. 88 (2010): 769.

Freeman, Nathan W. "Domestic Institutions, Capacity Limitations, and Compliance Costs: Host Country Determinants of Investment Treaty Arbitrations, 1987–2007." *International Interactions* 39.1 (2013): 54-78.

Gallagher, Kevin P., Amos Irwin, and Katherine Koleski. "The new banks in town: Chinese finance in Latin America." (2012).

Ghemawat, Pankaj. "Distance still matters." Harvard business review 79.8 (2001): 137-147.

Ghura, D. (1998). *Tax revenue in sub-saharan africa - effects of economic policies and corruption* International Monetary Fund, IMF Working Papers: 98/135.

Ginsburg, Tom. "International substitutes for domestic institutions: Bilateral investment treaties and governance."*International Review of Law and Economics* 25.1 (2005): 107-123.

Gohou, Gaston, and IssoufSoumaré. "Does foreign direct investment reduce poverty in Africa and are there regional differences?." *World Development*40.1 (2012): 75-95.

Greif, Avner. "History lessons: the birth of impersonal exchange: the community responsibility system and impartial justice."*The Journal of Economic Perspectives* 20.2 (2006): 221-236.

Guzman, Andrew T. "Why LDCs sign treaties that hurt them: Explaining the popularity of bilateral investment treaties." *Va. j. Int'l L.* 38 (1997): 639.

Hall, Robert E., and Charles I. Jones. Why do some countries produce so much more output per worker than others? No. W6564. *National Bureau of Economic Research*, 1999.

Hayek, Friedrich A. "v.(1960) The Constitution of Liberty." Chicago: University of Chicago (1960).

Hellman, Joel S., Geraint Jones, and Daniel Kaufmann. "Far from home: Do foreign investors import higher standards of governance in transition economies?."Available at *SSRN* 386900 (2002).

Hines, James R.,,Jr. (1988). In Summers L. H.,ed (Ed.), *Taxation and U.S. multinational investment* Cambridge, Mass.: National Bureau of Economic Research.

Horn, Henrik, Petros C. Mavroidis, and HåkanNordström. *Is the use of the WTO dispute settlement system biased?* Vol. 2340. London: Centre for Economic Policy Research, 1999.

International Country Risk Guide. Political Risk Services, 2010

Investor-State Dispute Settlement: Review of Developments in 2015, IIA Issue Note, No. 2, 2016

Jandhyala, Srividya, Witold J. Henisz, and Edward D. Mansfield. "Three waves of BITs: The global diffusion of foreign investment policy."*Journal of Conflict Resolution* (2011): 0022002711414373.

Janeba, E. (1998). Tax competition in imperfectly competitive markets. *Journal of International Economics, 44*(1), 135-153.

Jensen, Nathan M., and Daniel J. Young. "A violent future? Political risk insurance markets and violence forecasts." Journal of Conflict Resolution 52.4 (2008): 527-547.

Jones, Geoffrey. The evolution of international business: An introduction. Cengage Learning Emea, 1996.

Keen, Michael, and Ben Lockwood. "The value added tax: Its causes and consequences." Journal of Development Economics 92.2 (2010): 138-151.

Kim, Yong Kyun. "States Sued: Democracy, the Rule of Law, and Investor-State Dispute Settlement (ISDS)." *International Interactions* (2016): 1-26.

Kogut, Bruce, and Harbir Singh. "The effect of national culture on the choice of entry mode." Journal of international business studies 19.3 (1988): 411-432.

Kuenzel, David J. "WTO dispute determinants." *European Economic Review* 91 (2017): 157-179.

Knack, Stephen, and Omar Azfar. "Trade intensity, country size and corruption."*Economics of Governance* 4.1 (2003): 1-18.

Knack, Stephen, and Philip Keefer. "Institutions and economic performance: cross-country tests using alternative institutional measures."*Economics & Politics* 7.3 (1995): 207-227.

Leuthold, J. H. (1991). Tax shares in developing economies: A panel study. *Journal of Development Economics, 35*(1), 173-185.

Lotz, J. R., & Morss, E. R. (1967). Measuring "tax effort" in developing countries. *International Monetary Fund Staff Papers, 14*, 478-497.

La Porta, Rafael, et al. "Investor protection and corporate governance."*Journal of financial economics* 58.1 (2000): 3-27.

La Porta, Rafael, et al. "The quality of government."*Journal of Law, Economics, and Organization* 15.1 (1999): 222-279.

Li, Quan, and Tatiana Vashchilko. "Dyadic military conflict, security alliances, and bilateral FDI flows." Journal of International Business Studies 41.5 (2010): 765-782.

Lipset, Seymour M. "Political man: The social basis of modern politics."*NY: Doubleday* (1960).

Makino, Shige, and Eric WK Tsang. "Historical ties and foreign direct investment: An exploratory study." Journal of International Business Studies 42.4 (2011): 545-557.

Mauro, Paolo. "Corruption and growth." The *Quarterly Journal of Economics*(1995): 681-712.

Ménard, Claude, and Mary M. Shirley, eds.*Handbook of New Institutional Economics*. Vol. 9. Dordrecht: Springer, 2005.

Milligan, Kevin, Enrico Moretti, and Philip Oreopoulos. "Does education improve citizenship? Evidence from the United States and the United Kingdom."*Journal of Public Economics* 88.9 (2004): 1667-1695.

Neumayer, Eric. "Self- Interest, Foreign Need, and Good Governance: Are Bilateral Investment Treaty Programs Similar to Aid Allocation?"*Foreign Policy Analysis* 2.3 (2006): 245-268.

Nigh, Douglas. "The effect of political events on United States direct foreign investment: A pooled time-series cross-sectional analysis." Journal of International Business Studies (1985): 1-17.

North, Douglass C. Institutions, institutional change and economic performance.*Cambridge University Press*, 1990.

Norman, Catherine S. "Rule of law and the resource curse: abundance versus *intensity*." *Environmental And Resource Economics* 43.2 (2009): 183-207.

Nunn, Nathan, and Diego Puga. "Ruggedness: The blessing of bad geography in Africa."*Review of Economics and Statistics* 94.1 (2012): 20-36.

Poulsen, LaugeSkovgaard. "Significance of South-South BITs for the International Investment Regime: A Quantitative Analysis, The." Nw. J. Int'l L. & Bus. 30 (2010): 101.

Rangan, Subramanian. "Search and deliberation in international exchange: Micro foundations to some macro patterns." Journal of international business studies 31.2 (2000): 205-222.

Rigobon, Roberto, and Dani Rodrik. "Rule of law, democracy, openness, and income."*Economics of transition* 13.3 (2005): 533-564.

Rindermann, Heiner. "Relevance of education and intelligence at the national level for the economic welfare of people."*Intelligence* 36.2 (2008): 127-142.

Rodrik, Dani. TFPG controversies, institutions, and economic performance in East Asia. No. W5914.*National Bureau of Economic Research*, 1997.

Rodrik, Dani. "Goodbye Washington consensus, hello Washington confusion? A review of the World Bank's economic growth in the 1990s: learning from a decade of reform."*Journal of Economic literature* 44.4 (2006): 973-987.

Rodrik, Dani. Second-best institutions. No. w14050.*National Bureau of Economic Research*, 2008.

Roodman, David. "How to do xtabond2: An introduction to difference and system GMM in Stata."*Center for Global Development*, working paper 103 (2006).

Roodman, David. "A note on the theme of too many instruments."*Oxford Bulletin of Economics and Statistics* 71.1 (2009): 135-158.

Root, Hilton. "The importance of being small."*Center for International Studies*, Working Paper 99-13 (1999).

Rose-Ackerman, Susan, and Jennifer Tobin. "Foreign direct investment and the business environment in developing countries: The impact of bilateral investment treaties." *Yale Law & Economics Research Paper*, 293 (2005).

Sachs, Jeffrey D., and Andrew Warner. "Natural resource intensity and economic growth." *Development Policies in Natural Resource Economies*(1999): 13-38.

Salacuse, Jeswald W. "BIT by BIT: The growth of bilateral investment treaties and their impact on foreign investment in developing countries."*The International Lawyer* (1990): 655-675.

Salacuse, Jeswald W., and Nicholas P. Sullivan. "Do BITs really work: An evaluation of bilateral investment treaties and their grand bargain."*Harv. Int'l LJ* 46 (2005): 67.

Simmons, Beth A. "International law and state behavior: Commitment and compliance in international monetary affairs." *American Political Science Review* 94.04 (2000): 819-835.

SmarzynskaJavorcik, Beata. "Does foreign direct investment increase the productivity of domestic firms? In search of spillovers through backward linkages." The *American Economic Review* 94.3 (2004): 605-627.

Sasse, Jan Peter.An Economic Analysis of Bilateral Investment Treaties.*Springer Science & Business Media*, 2011.

Stouffer, Samuel Andrew. Communism, conformity, and civil liberties: A cross-section of the nation speaks its mind.*Transaction Publishers*, 1955.

Stotsky, J. G., & WoldeMariam, A. (1997). *Tax effort in sub-saharan africa* International Monetary Fund, IMF Working Papers: 97/107.

Tambunan, Tulus. "The impact of Foreign Direct Investment on poverty reduction: A survey of literature and a temporary finding from Indonesia. “Consultative meeting on “Foreign Direct Investment and Policy Changes: Areas for New Research”,*United Nations Conference Centre, Bangkok, Thailand*. 2005.

Tait, A. A., Grtz, W. L. M., & Eichengreen, B. J. (1979). International comparisons of taxation for selected developing countries, 1972-76. *International Monetary Fund Staff Papers, 26*(1), 123-156.

Tanzi, V. (1992). *Financial markets and public finance in the transformation process* International Monetary Fund, IMF Working Papers: 92/29.

Tanzi, V., & Zee, H. H. (2000). *Tax policy for emerging markets - developing countries* International Monetary Fund, IMF Working Papers: 00/35.

Tanzi, V. (1977). Inflation, lags in collection, and the real value of tax revenue. *International Monetary Fund Staff Papers, 24*(1), 154-167.

Teera, J. M., & Hudson, J. (2004). Tax performance: A comparative study. *Journal of International Development, 16*(6), 785-802.

Tupy, Marian L. "Trade liberalization and poverty reduction in sub-Saharan Africa." *Policy Analysis* 557 (2015).

Truex, Rory. "Corruption, attitudes, and education: Survey evidence from Nepal." *World Development* 39.7 (2011): 1133-1142.

Vandevelde, Kenneth J. Bilateral investment treaties: history, policy, and interpretation. *Oxford University Press*, 2010.

Wei, Shang-Jin. Natural openness and good government. No. W7765.*National Bureau of Economic Research*, 2000.

Wei, Shang-Jin. "How taxing is corruption on international investors? *“Review of Economics and Statistics* 82.1 (2000): 1-11.

Williamson, Oliver E. "The new institutional economics: taking stock, looking ahead. *“Journal of Economic* Literature (2000): 595-613.

Zarb, Bert J. "Double Tax Treaties." *The CPA Journal* 81.3 (2011): 50.