

# Bilateral Investment Treaties and Domestic Institutions

A Preliminary Version

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# 1 Introduction

The international trade regime tends to be governed by a network of bilateral investment treaties (BITs) rather than by a multilateral institution. BITs have proliferated at a remarkable phase particularly since the 1990s. Before 1990, there were only about 600 BITs signed; the number has since exploded, and as of 2011, there are more than 5,600 BITs signed between countries in the world, a nine-times increase in number over the two decades.

The recent two decades have witnessed another quite remarkable phenomenon: more and more states have been brought to international tribunals by foreign investors. According to a recent report by UNCTAD (2011), the number of such investor-state dispute settlement (ISDS) arbitration cases, almost unheard of before 1990, has dramatically increased since the mid-1990s. The cumulative number of known such cases stands now almost at 400 as of 2010. The great majority of those ISDS cases were initiated by multinational corporations operating in foreign countries on the basis of an ISDS provision in a BIT, which grants them the right to bring a case against the host states before an international arbitral institutions such as the International Center for Settlement of Investment Dispute (ICSID). In many cases, the arbitration panels have found the host governments “guilty” of violating some of the provisions of the BITs and rendered arbitral awards ordering the states to pay compensations to the injured investors.

Why do sovereign states sign BITs that give foreign investors an extensive list of protections as well as the right to sue them to an international court when a dispute arises? The literature has suggested that BITs serve as a “tying hands” device for potential host governments. Once investments have been made, the host state has an *ex post* incentive to re-negotiate the terms of foreign investment, a dynamic known as “obsolescing bargaining” in the foreign direct investment (FDI) literature. This is the problem for the host state as it cannot bring in FDI as much as it wishes to because of its lack of credibility. A mere promise not to expropriate foreign investments would not be credible enough in the presence of such strong incentive for the host to break its promise afterwards; hence, it

suffers a shortage of FDI inflows. BITs, particularly ones with an ISDS provision, can help the host states solve this time-inconsistency problem. By entering into a legally binding treaty with capital-exporting countries, the host states can effectively remove the *ex post* incentive to expropriate.

Although this argument provides a compelling explanation of why states to some degree their sovereign power to international bodies, there are still puzzling questions. If host countries want BITs to attract more FDI inflows, why are those hosts who are in desperate need of foreign capital not always among the first who sign them? If BITs are to make up for the lack of local legal credibility, why do those hosts with greater legal effectiveness seem more eager to negotiate BITs? Especially regarding the second question, some prior studies hypothesize that states with weak indigenous legal credibility are more willing to sign BITs, because the credibility enhancing function of BITs are most effective in such states. However, it should be noted that any credible commitment device creates a tradeoff between its *ex ante* benefit and *ex post* cost. We cannot rule out the possibility that states without independent courts are less willing to tie their hands because their *ex post* costs in potential disputes outweigh the *ex ante* benefit of attracting FDI. In order to have precise theoretical predictions, we need to rigorously model the way how BITs works as a credible commitment.

We develop a game-theoretic model where the player are the government in a capital importing country and an investor from a capital exporting country. We prove that, generically, there exists a unique subgame perfect equilibrium of the game. In equilibrium, the host state is less likely to adopt regulations that harm the profit of the foreign investor when a BIT is signed than when it is not. Expecting that, the investor invests more when a BIT is signed than when it is not. Thus, our equilibrium analysis reinforces the logic of BITs in the literature: they protect and thus attract capital. Furthermore, our comparative static analysis shed new light on the conditions under which states are more willing to sign BITs. Our model explicitly theorizes the degree to which the host governments rely on two parameters in their decisions: the intensity of their demands for FDI and the expected probability of winning in the dispute in domestic courts. Our

results show that the two parameters interact in shaping the host state’s decision-making. In particular, we show that, under certain conditions, the effect of the latter parameter, interpreted as the degree of judicial dependence, on the likelihood of BITs is positive. This counters the aforementioned claim in the literature and solves an empirical puzzle.

We empirically test hypotheses derived from our formal model, using the dataset we constructed from several different sources. We employ Cox proportional hazard models to estimate the effects of several independent variables on the hazard rate for a dyad’s treaty signing. The results of our empirical analysis largely support our theoretical predictions.

The rest of the paper is organized as follows. In the next section, we present the theoretical model and its analysis. In Section 3, we derive testable hypotheses from the comparative statics of the model. In Section 4, we present empirical analysis. In Section 5, we conclude.

## 2 Theoretical Model

### 2.1 Model

We consider a game-theoretic model in which two players, the government in the host country ( $H$ ) and a (representative) investor in the home country ( $I$ ), sequentially choose their moves. The sequence of choices is as follows.

1. In the beginning of the game, the host country decides whether to sign (1) the BIT or not (0). This choice is denoted by  $x \in \{0, 1\}$ .
2. After observing  $x$ , the investor chooses how much money she will invest in the host country, say  $y \in \mathbb{R}_+$ .
- (3) The state of the world in the host country  $\theta$  is drawn from  $\mathbb{R}$  according to a (cumulative) distribution  $F$  with continuous density function  $f$ . This random event is interpreted as a shock in political demand of domestic (regulatory) policies that will affect the profit rate of the foreign capital. We assume  $f$  is positive on the whole real line.

3. After observing  $\theta$  and all other previous choices, the host country decides whether to adopt a regulatory policy (1) or not (0). This choice is denoted by  $r \in \{0, 1\}$ . If  $r = 0$ , then the game ends.
4. Otherwise, the investor decides whether to dispute (1) or not (0). This choice is denoted by  $d \in \{0, 1\}$ .

For notational convenience, we assume that after  $H$  decides not to adopt the regulatory policy ( $r = 0$ ), there is another trivial decision node at which the only available choice of  $I$  is not to dispute ( $d = 0$ ). Then, a terminal node of this game can be denoted by a history of length five  $(x, y, \theta, r, d) \in \{0, 1\} \times \mathbb{R}_+ \times \mathbb{R} \times \{0, 1\} \times \{0, 1\}$  with the proviso that  $r = 0$  implies  $d = 0$ . We have to define each player's payoff at each terminal history.

The investor's payoff consists of two components: the profit she makes out of the investment and the expected benefit from the possible investor/state dispute. We assume that the investor's profit depends on the regulation by the host country as well as the size of the investment. Specifically, we use a simple quadratic profit function  $w : \mathbb{R}_+ \times \{0, 1\} \rightarrow \mathbb{R}$  such that for each level of investment  $y \in \mathbb{R}_+$  and each policy choice  $r \in \{0, 1\}$ , the investor's profit is

$$w(y, r) = -\frac{1}{2}y^2 + [a + (1 - r)b]y. \quad (1)$$

We assume that both  $a$  and  $b$  are positive. In particular, this implies that the regulatory policy decreases the investor's marginal profit at every level of the investment.

Next, when the investor decides to challenge in her last decision node, her expected payoff from the dispute is

$$B(x) = p_x e - c_I, \quad (2)$$

where  $p_x \in (0, 1)$  is the probability that the investor wins in the dispute,  $e > 0$  is the amount of compensation that the government should pay to the investor in the case that the investor wins in the dispute, and  $c_I > 0$  is the investor's cost of the dispute. When the BIT is signed ( $x = 1$ ), the decision on the dispute is made in some international tribunal. Otherwise ( $x = 0$ ), it is made by the domestic courts in the host country. We assume that

the investor is more likely to win in the former case than it is in the latter, i.e.,  $p_1 > p_0$ . The overall payoff of the investor in the game, then, is expressed as

$$u_I(x, y, \theta, r, d) = w(y, r) + dB(x). \quad (3)$$

The payoff for the host country is represented by a function

$$u_H(x, y, \theta, r, d) = \alpha y + r\theta - dL(x) - x\epsilon. \quad (4)$$

That is, the government's payoff depends on the size of the foreign investment, the policy choice of the government interacted with the political demand of the regulation, and the expected loss of the possible investor/state dispute. We assume  $\alpha$  is positive, i.e., all else being equal, the host country likes high FDI inflows and the parameter  $\alpha$  captures the degree of such preference. Second, the realization of random variable  $\theta$  captures political demand of the regulatory policy in the host country. When  $\theta$  is a positive number, implementing the regulatory policy ( $r = 1$ ) is beneficial for the government, all else being equal, and the benefit is greater as  $\theta$  is larger. Third,

$$L(x) = p_x e + c_H. \quad (5)$$

is the expected loss of  $H$  in the dispute, where  $c_H > 0$  is the host country's cost of the dispute. Lastly,  $\epsilon \in \mathbb{R}$  is a variable that summarizes the host country's various costs of signing the BIT relative to not signing that are independent from the three other variables in (4). Factors that determine  $\epsilon$  may include some dyad-specific issues such as cultural closeness to the home country, the degree of the pressure from the home country for non-economic reasons, and symbolic benefit or cost of signing the treaty for domestic audience. In drawing empirical implications of our model, we regard  $\epsilon$  or some factors determining it as random from the viewpoint of researchers, which is the main uncertainty in the data generating process.

Throughout we assume the game form and the payoffs are common knowledge.

## 2.2 Equilibrium Analysis

We solve this game for subgame perfect equilibria using the backward induction algorithm.

### 2.2.1 Dispute Decision

In the final stage of the game, the investor would choose to dispute if and only if  $B(x) = p_x e - c_I \geq 0$ . We assume  $B(1) > 0$ , i.e.,  $p_1 > \frac{c_I}{e}$ . In other words, we focus only on some interesting types of domestic regulations that are so likely to be disapproved by international tribunals that investors believe that it is worth to sue the government if those regulations are adopted. On the other hand, the sign of  $B(0)$  depends on  $p_0$  that varies across different countries. Let  $d(x)$  be  $I$ 's dispute decision given the treaty decision  $x$ . From this discussion, we conclude in equilibrium:

1. When  $p_0 < \frac{c_I}{e}$ ,  $d(0) = 0$  and  $d(1) = 1$ .
2. When  $p_0 \geq \frac{c_I}{e}$ ,  $d(0) = 1$  and  $d(1) = 1$ .

### 2.2.2 Policy Decision

Given the treaty signing decision  $x \in \{0, 1\}$  in the beginning of the game, the optimal dispute decision  $d(x)$  by the investor is anticipated by the government. When  $d(x) = 0$ , then the government expects that its regulation would not be challenged. Thus,  $H$  adopts the regulation if and only if  $\theta \geq 0$ ; that is, whenever the regulation is politically beneficial. On the other hand, when  $d(x) = 1$ , then the government expects that the regulation would be challenged and thus costly. Then,  $H$  adopts the regulation if and only if  $\theta \geq L(x)$ ; that is, whenever the political benefit of the regulation exceeds the expected loss in the investor/state dispute.

The discussion is formalized in the following way. Define

$$\underline{\theta}(x) = \begin{cases} 0 & \text{if } x = 0 \text{ and } p_0 < \frac{c_I}{e}, \\ L(0) & \text{if } x = 0 \text{ and } p_0 \geq \frac{c_I}{e}, \\ L(1) & \text{if } x = 1. \end{cases}$$

Let  $r(x)$  be  $H$ 's choice on the regulation given  $x$ . Then

$$r(x) = \begin{cases} 1 & \text{if } \theta \geq \underline{\theta}(x), \\ 0 & \text{if } \theta < \underline{\theta}(x). \end{cases}$$

Note that the ex ante probability that the regulation is adopted is  $1 - F(\underline{\theta}(x))$ . Since it is always the case that  $\underline{\theta}(1) > \underline{\theta}(0)$ , the regulation is less likely to be implemented when the BIT was signed than when it was not.

### 2.2.3 Investment Decision

When the investor chooses how much she invests, the treaty signing decision  $x \in \{0, 1\}$  is given, and the optimal decisions on the regulation and the dispute are anticipated for each given state of the world  $\theta$ . However, the return of the investment is uncertain because the investor does not know  $\theta$ . Let  $U^I(x, y)$  be  $I$ 's expected payoff from choosing  $y$  given  $x$ . From the discussions in the previous sections, we conclude that

$$U^I(x, y) = F(\underline{\theta}(x))w(y, 0) + [1 - F(\underline{\theta}(x))][w(y, 1) + d(x)B(x)]. \quad (6)$$

The investor will choose the amount of investment that maximizes the above objective function. For each given  $x$ , (6) is a strictly concave function of  $y$ , so the maximizer is unique. Let  $y(x)$  be the  $I$ ' optimal investment given  $x$ .

Differentiating the above function with respect to  $y$ , we obtain<sup>1</sup>

$$\begin{aligned} U_2^I(x, y) &= F(\underline{\theta}(x))w_1(y, 0) + [1 - F(\underline{\theta}(x))]w_1(y, 1) \\ &= F(\underline{\theta}(x))(a + b - y) + [1 - F(\underline{\theta}(x))](a - y) \\ &= -y + a + bF(\underline{\theta}(x)). \end{aligned}$$

By the first order condition,  $y(x) = a + bF(\underline{\theta}(x))$ . Note that  $y(1) > y(0)$ , that is, the FDI inflows to the host country will be larger when the BIT is present than when it is not.

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<sup>1</sup>For any multi-variable function, say  $h$ , we use notation  $h_i$  to denote the partial derivative of  $h$  with respect to the  $i$ th variable,  $h_{ii}$  to denote the second derivative with respect to the  $i$ th variable, and  $h_{ij}$  to denote the cross-partial with respect to the  $i$ th and the  $j$ th variable.



### 2.2.4 Treaty Signing Decision

Let  $U^H(x)$  be  $H$ 's expected payoff from choosing  $x$  given the strategies of the players in the later stages of the game. Then,

$$\begin{aligned} U^H(x) &= \alpha y(x) + [1 - F(\underline{\theta}(x))] [E(\theta | \theta \geq \underline{\theta}(x)) - d(x)L(x)] - x\epsilon \\ &= \alpha[a + bF(\underline{\theta}(x))] + \int_{\underline{\theta}(x)}^{+\infty} \theta f(\theta) d\theta - [1 - F(\underline{\theta}(x))]d(x)L(x) - x\epsilon. \end{aligned}$$

Let  $D$  be the relative benefit of the BIT for the host country without considering the non-systematic cost  $\epsilon$ . That is,  $D = U^H(1) - U^H(0) + \epsilon$ . Then,

$$\begin{aligned} D &= \alpha b[F(\underline{\theta}(1)) - F(\underline{\theta}(0))] - \int_{\underline{\theta}(0)}^{\underline{\theta}(1)} \theta f(\theta) d\theta \\ &\quad + [1 - F(\underline{\theta}(0))]d(0)L(0) - [1 - F(\underline{\theta}(1))]L(1) \\ &= \alpha b[F(\underline{\theta}(1)) - F(\underline{\theta}(0))] - \int_{\underline{\theta}(0)}^{\underline{\theta}(1)} \theta f(\theta) d\theta \\ &\quad + [1 - F(\underline{\theta}(0))]\underline{\theta}(0) - [1 - F(\underline{\theta}(1))]\underline{\theta}(1). \end{aligned} \tag{7}$$

The first term in the RHS captures the benefit of increasing FDI inflows thanks to the BIT, the second term represents the cost of not implementing the regulatory policy when there is a political demand, and the third and fourth terms compare the costs of disputes with and without the BIT. By construction, when  $D > \epsilon$ ,  $U^H(1) > U^H(0)$ , so the host country will sign the treaty; when the inequality is reversed, the host country will not. Thus, the optimal choice is multiple only when  $D = \epsilon$ , a knife-edge case. We simply assume the indifferent host country signs the treaty. By doing so, we do not lose generality for generic cases and guarantee uniqueness of equilibria.

The result of the analysis is summarized by the following proposition.

**Proposition 1** *There exists a unique subgame perfect equilibrium of the game. In it:*

- *The host country is less likely to implement the regulatory policy when the BIT is signed than when it is not.*

- *The investor invests more when the BIT is signed when it is not.*

The proposition reaffirms the effects of BIT as a “tying hands mechanism.” By signing BITs, a country delegates some of its sovereign power to a third party, and, thus, voluntarily decreases its winning probability of potential investor/state disputes. As such, once BITs are signed, the expected cost of adopting regulatory policies increases, so there will be marginal cases that the host country will not implement some regulatory policies precisely because of BITs. As this is expected, a BIT works as a credible commitment not to expropriate foreign capital. From the viewpoint of investors, a BIT between their home countries and a potential host country reduces political risks of investing in the host country. First, in case of disputes, they can go to international tribunals rather than local courts, and so has a better chance to be awarded. Second, because of that, the host country is less likely to adopt policies that harm the investors’ profits. Hence, BITs will increase the FDI inflows to the host countries. In sum, our simple model predicts that BITs in general work as expected: they protect and thus attract foreign capital.

### 3 Comparative Statics and Empirical Implications

In our empirical analysis, we focus on the host country’s choice in the beginning of the game. That is, we ask what countries sign BITs and when. The comparative static analysis of our model uncovers the relationship between the likelihood of BITs and some empirical factors in a manner that is more nuanced than what has been known by the existing studies. To derive the implications of the model on empirical observations, we consider the (non-systematic) dyad-specific cost  $\epsilon$  as random. The host country will sign the BIT if and only if  $D \geq \epsilon$ . Assuming that  $\epsilon$  is distributed by a cumulative distribution  $G$ , we conclude that the probability of BIT is equal to  $G(D)$ . Thus, as  $D$  increases, the BIT is more likely to be signed.

We focus on the effects of two model parameters on the likelihood of BIT:  $\alpha$  and  $p_0$ . The parameter  $\alpha$  captures the intensity of the host country’s preference of FDI inflows. A few interesting empirical variables is thought to be related  $\alpha$ . The ideology of the host

government may affect its preference of FDI: a *right wing government* may in general like foreign investment more than a left wing government does. The parameter may also be related to economic variables that affect the necessity of FDI. First, a country's income may matter. We posit that *middle-income countries* tend to have stronger preferences of FDI than low-income or high-income countries. All else being equal, in high-income countries, capital is relatively less scarce. Empirically, they are not so much capital-importing countries as capital-exporting ones. On the other hand, when countries are very poor, they may not have minimal economic strengths that are necessary for FDI to be meaningful. Instead, international aids would be effective and available sources of foreign capital for poor countries. By contrast, middle-income economies, in general, are in the developing stages that need much capital, and foreign aids are not easily attainable resources for them. Second, a country's state of the economy, for various reasons independent from its income level, may be such that it desperately needs capital investment. As a proxy of such a state, we use the variable that indicates, whether a country draws *IMF credits*.

The parameter  $p_0$  is the probability that the investor wins the dispute in the host country's domestic court. We regard  $p_1$ , the probability of the host country's winning in international tribunals, as fixed, but  $p_0$  varies across countries and over time within each country. As such,  $p_0$  measures the propensity that domestic courts make a decision that favors foreign investors compared to that of the international third party. Note that we maintain the assumption that  $p_0 < p_1$ . High  $p_0$  ( i.e., close to  $p_1$ ) implies that the judicial decision-making in the host country fits with international standards in terms of impartiality and respects of property rights. Then the parameter is related to how capable domestic courts in a host country make decisions neutrally and independently from the executive as well as how strongly property rights are protected in the legal codes in the country. Our empirical variable that captures  $p_0$  is *rule of law*, of which the measure is explained in the next section.

We now proceed to present the comparative static results and testable hypotheses. The next proposition regards the effect of  $\alpha$ .

**Proposition 2** *The higher the value of  $\alpha$ , the more likely is the BIT signed.*

The intuition is transparent. Signing BIT works as the host country's credible commitment not to expropriate the foreign capital to the extent that it decreases the probability of the regulation. As such, the FDI inflows will be larger with BIT than without. While this benefit of BITs, increasing FDI, is more valued by a country with high  $\alpha$  than by that with low  $\alpha$ , the potential costs of BITs are independent from  $\alpha$ . Therefore, if the host country strongly prefers larger capital inflows, then it is more likely to sign BITs.

From Proposition 2, we derive the following hypotheses.

**H1-1** A right wing government is more likely to sign BITs than a left wing government.

**H1-2** Middle-income countries are more likely to sign BITs than low-income and high-income countries.

**H1-3** A country is more likely to sign BITs when it draws IMF credits than when it does not.

Next, we consider the effect of  $p_0$  on the likelihood of BITs.

**Proposition 3** *The sign of  $\frac{\partial D}{\partial p_0}$  depends on  $\alpha$ .*

1. *If  $\alpha$  is sufficiently large, then the likelihood of BIT decreases as  $p_0$  increases.*
2. *When  $\alpha$  is sufficiently small, then the likelihood of BIT increases as  $p_0$  increases.*

The intuition behind this result will be clear when we consider the tradeoff the host country confronts when it decides whether to sign BITs. The benefit of BITs is the increase of FDI inflows. By signing BITs, the host country increases its own cost of potential investor-state disputes, and thus decreases its incentive to implement regulatory policies that harm interests of foreign investors. Thus, the host country incurs the *ex ante* benefit of increasing foreign investments only by incurring the *ex post* cost of “tying-hands.” Specifically, the cost is that, when the state of world in which a strong regulation

is politically beneficial is realized, the host country is either unable to implement it because of BITs or incurs the higher cost of investor-state disputes.

Now suppose that we increase the value of  $p_0$  from a low value  $\underline{p}$  to a high value  $\bar{p}$ , holding all other parameters constant. In the game with  $\bar{p}$ , the investor's chance of winning potential disputes in domestic courts is closer to that in the international body than it is in the original game with  $\underline{p}$ . This means that the host country's ex post cost of signing a BIT is less in the game with  $\bar{p}$  than it is in the game with  $\underline{p}$ . However, because of this, the power of the BIT as a commitment device is weaker in the game with  $\bar{p}$  than it is in the game with  $\underline{p}$ . The increase of FDI inflows thanks to the BIT is less in the game with  $\bar{p}$  than it is in the game with  $\underline{p}$ . Hence, increasing the value of  $p_0$  decreases the ex ante benefit of increasing foreign investments and the ex post cost of tying-hands in future policy-making. If the host country desperately needs large FDI inflows (i.e., a high  $\alpha$ ), then the decrease of the benefit outweighs the decrease of the cost, and thus, the overall benefit of the BIT becomes smaller as we increase the value of  $p_0$ . By contrast, if the country only has a weak preference of foreign investments, then the overall benefit of the BIT becomes larger as  $p_0$  goes greater.

While we can identify bounds of  $\alpha$  that make the effect of  $p_0$  positive or negative theoretically, it is difficult, if not impossible, to know whether any given observed data point belongs to 'sufficiently high' range of  $p_0$  or 'sufficiently low' range of  $p_0$ . Thus, the prediction of Proposition 3 is to some extent indeterminate for the purpose of being compared with empirical observations. However, it turns out that the effect of  $p_0$  is globally monotonic in  $\alpha$ , which generates another set of hypotheses.

**Proposition 4** *The following is true.*

1. *As  $p_0$  increases, the positive effect of  $\alpha$  on the likelihood of BITs decreases.*
2. *As  $\alpha$  increases, the effect of  $p_0$  on the likelihood of BITs decreases.*

From this result, we hypothesize the following.

**H2-1** As rule of law becomes stronger, the effect of right wing government on the likelihood of BIT becomes weaker.

**H2-2** As rule of law becomes stronger, the effect of middle-income countries on the likelihood of BIT becomes weaker.

**H2-3** As rule of law becomes stronger, the effect of IMF credits on the likelihood of BIT becomes weaker.

We now proceed to test these hypotheses empirically.

## 4 Empirical Analysis

### 4.1 Data and Measures

We employ an event history model to test the central propositions derived from our model.

Following previous studies (EGS 2006, JHM 2011), we analyze the duration of time before a pair of countries sign a BIT. There are several issues regarding the measurement of our dependent: one is related to the repeated BITs within the same dyads, and the other to the differences in the effects of BITs between signing and ratification. Regarding the former issue, one example best illustrates the caveat: the recent Germany-Pakistan BIT in 2009 is backdated to 1959, the very year of the first known BIT signing. As there is little ground to prioritize one of these two events, we determined to test both. While the UNCTAD database records only the most recently signed BITs in such cases, the dataset compiled by EGS contains the information on previously signed BITs as well. We therefore test not only the year of their first signing, but also the year of their latest signing as the event time in this study.<sup>2</sup>

Our main dependent variable is then the number of elapsed years until a BIT was signed (or until 2011 if no BIT was ever signed) from 1958 (or from the year in which either

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<sup>2</sup>The dataset is constructed using the most recent information from the UNCTAD database on investment instruments. We accessed it in May, 2012.

of signatories came into being if it is after 1958). We generally agree with the conventional wisdom that signing a BIT is “the crucial action”(UNCTAD 1998, p. 106) toward a credible commitment by a host country in that it sends foreign investors a signal that the host country would grant a right to seek legal procedures to the potential investors. Hence, on one hand, we decide to keep the year of signing as our primary focus in line with most previous studies. On the other hand, we are aware that there are studies that show that ratification matters. According to such studies, a bilateral treaty is not legally binding until it goes into effect by both signatories’ actual ratifications. If it is signed but remains un-ratified, it cannot be effectively used as a credibility-enhancing, ex post legal device. This problem might be mitigated if “the great majority of BITs are ratified” sooner than later following their signing (UNCTAD 1998, p. 106); however, approximately a quarter of all BITs that are signed remain un-ratified by either of signatories.<sup>3</sup> We therefore hold a belief that it is wise to doubt the power of signing a BIT as an unambiguous signal to the market and therefore, better to cross-check its validity with an alternate measure using the year in which a BIT goes into effect as the event time.

Our sample contains all the dyads composed of independent states except “irrelevant dyads,” dyads both of which members are classified as high income countries by the World Bank. As a robustness check, however, we also use a narrower definition of an irrelevant dyad by restricting it to (original) OECD pairs.<sup>4</sup> As noted by EGS (2006, p. 826), about forty dyads have entered into more than one treaty. Finally, to distinguish between the potential host and home countries in a given dyad-year, we compare the two countries’ GDP per capita and designate the richer one as the home and the poorer one as the host (EGS 2006, JHM 2011).

Our main hypotheses from the model center around  $\alpha$ , the parameter that captures the intensity of FDI preference, and  $p_0$ , the parameter that captures the degree to which investors, domestic or foreign, can count on local courts in a dispute with the host government, and the interaction between the two. The key independent variables of our primary

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<sup>3</sup>Of 2,698 signed BITs in our dataset, only 2,046 BITs went into effect as of 2011.

<sup>4</sup>We also exclude from the UNCTAD list those dyads in which Hong Kong, Macao, Monaco, or Palestine is a member.

interest are then a measure of host country's rule of law, and three measures representing the host country's preference for FDI (right-wing governments, middle-income countries, and years when countries draw IMF credits). (explain why now or do it in theory section?)

For rule of law, we use *law and order* from the ICRG (The PRS Group, year?). It is a continuous measure ranging from zero to six. It reasonably taps "legal strength and impartiality" of a country (The PRS Group). It also covers nearly every country on an annual basis. For these reasons, many previous studies have employed this measure to estimate the effects of a host country's rule of law on a BIT signing (e.g., EGS 2006 and Allee and Peinhardt 2010). As an indicator of whether the right-wing party is in power in the host country, we rely on experts' classification of the executive's ideology (*execrlc*) (DPI 2010). (any other studies that have ever used this data?) To create a dummy for middle-income countries, we code it as one if its GDP per capita falls within the 25th-75th percentile range of GDP per capita of all host countries. As measured in constant \$US at the year of 2000, the middle 50 percent range covers from \$2,700 (an exemplary country?) to \$14,500 (an exemplary country?). Finally, a country-year is coded one for the IMF dummy if the country's use of IMF credits is greater than zero for that year. The data on use of IMF credits are from WDI.

Aside from the indicators of  $\alpha$  and  $p_0$ , we also consider a number of variables that are related to the characteristics of host or home countries as well as dyadic relationships. We control for political and economic conditions in the host country. Democracies can be seen as more credible than autocracies by foreign investors (cite Jensen). This implies that a higher level of democracy in the host country may reduce a need to enter into BITs. In order to control for general economic conditions, we include the host's GDP to capture the market size of the host's economy. We also include in our regression model its GDP growth rate to reflect the effect of a short-term fluctuation of the host economy. In order to account for the characteristics of home countries (of the investors), we consider the "total FDI exposure" of the home country by measuring its net FDI outflows as a percentage of GDP (EGS 2006, p. 834). Countries with a greater amount of capital invested abroad are more likely to negotiate BITs with host countries to protect their



investors.

We also consider some dyadic traits that would make a dyad more or less likely to conclude a BIT. Dyads of which members are located in the same geographic region should have a greater chance to sign BITs between them for several reasons. They may share common cultural traits such as language, religion, and even colonial heritages (EGS 2006). There may be a stronger economic tie such as a high volume of dyadic trade between the two (EGS 2006). Since BITs are signed to facilitate foreign investments from capital-rich countries to capital-poor ones, the greater the difference between income levels of the home and host countries, the more likely is the dyad to have a BIT.

Diffusion has been one of the principal forces behind the proliferation of BITs particularly during the 1990s (EGS 2006, JHM 2011). To take into account the competition or learning dynamics that drive the diffusion of BITs among potential host countries, we calculate for each host country and for each year the number of BITs in effect that were signed by host countries from the same region of that country. This is based on an assumption that host countries within the same region are more likely to be peers for one another affecting, and being affected by, FDI promotion policies adopted by their peers. More generally, the diffusion process of a policy adoption often features an S-shaped over-time dynamics, with the pace of adoption noticeably accelerated in the middle of the time dimension, as demonstrated in Schelling (1978) and Granovetter's threshold models (1978). The cumulative number of BITs in effect and its square are used to capture such an S-shaped evolution over time. The simple annual number of BITs that go into effect is also added to account for the global competitive pressure for BIT signings. Similarly we also include a world-wide average of net FDI inflows as a percentage of GDP for each year to approximate the magnitude of competition over FDI. Finally to see if any shift has occurred since the end of the Cold War, we add the cold war dummy distinguishing between before and after 1991.

## 4.2 Results

We run Cox proportional hazard models to estimate the effects of independent variables on the hazard rate for a dyad’s treaty signing.<sup>5</sup> The results from the main model are reported in Table 1. Overall,, all three variables representing high  $\alpha$  and their interaction terms with rule of law, in particular, have the expected signs and are highly significant at conventional statistical thresholds. The finding is fairly consistent with our theoretical prediction that a host country’s preference for FDI has divergent effects on the odds of a BIT, conditional on its level of rule of law.

**Table 1 about here**

Specifically, as we expected, when the right is in power, host governments are more likely to sign BITs holding rule of law at the mean (2.3). As shown in Figure 1, however, the effects of right-wing government substantially vary with the level of rule of law. Its sign remains positive so long as *law and order* is not too high. Right-wing governments with a very high degree of rule of law (*law and order* of about four or higher), however, are less willing to enter into BITs.<sup>6</sup> This pattern lends sufficient credence to our theory that a host’s strong preference for FDI does not translate into a greater willingness to sign a hands-tying treaty when its indigenous legal credibility is already well established.

**Figure 1 about here**

Similar patterns can be observed with regard to two other factors: being in the middle income category and being under IMF programs. Host countries that belong to the middle range in GDP per capita turn out to be, on average, much eager to enter into BITs; the hazard rate is 25% higher relative to countries with per capita income lower than \$2,700 or higher than \$14,500. However, this greater propensity for a middle income host to sign

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<sup>5</sup>We employ this model because it allows us to estimate the coefficients of our explanatory variables without any assumption on the baseline hazard.

<sup>6</sup>A *law and order* score of four corresponds to its 90th percentile.

a BIT becomes more evident as its rule of law is weak, while such a positive interaction effect disappears and eventually becomes zero when there is strong rule of law in the host country. Likewise, the IMF dummy exhibits the same effects in its interaction with the rule of law. Holding *law and order* at the mean, it has a significant positive impact on BIT signing; yet its effect decreases with the rule of law. The finding suggests that those potential hosts with strong domestic legal institutions may not be induced to negotiate BITs even when they are in short of foreign capital. This result is again in line with the prediction of our model that the host's perceived benefits from signing BITs may be outweighed by its consideration of sovereignty costs.

Figure 2 summarizes the divergent effects of the rule of law depending on different combinations of the three  $\alpha$  variables. As we move from high to low for each  $\alpha$  variable, that is, from the right to the left, from the middle income to the non-middle income, and from IMF to no IMF, holding the other two constant, we can see the effects of rule of law become consistently stronger. High rule-of-law host countries are more likely to sign BITs than are low rule-of-law countries, and this is significantly less so when they are more desperately in need of FDI.

### **Figure 2 about here**

For those hosts that are in want of FDI, signing BITs generate the largest net benefits when they lack any legal effectiveness and impartiality. When those legal institutions are already in place, however, enhanced credibility simply may raise the host's concerns about sovereignty costs. By contrast, countries with left-wing governments, countries with high or low income, and countries that do not have to draw on IMF resources, may find signing BITs least attractive when the rule of law is very weak, as they do not strongly care about the substantial sovereign costs paid for an increase in FDI. As the rule of law greatly improves, however, these host countries become more willing to enter into BITs since the costs associated with it decline to a greater extent.

This finding is of crucial importance, as it suggests that the previous studies on the relationship between the rule of law and BITs require a serious revision: the previous

literature has generally assumed that, when the rule of law is strong (therefore the judicial system does not discriminate foreign investors over the host governments), the host governments (regardless of their partisan characteristics) are less likely to sign BITs due to their greater concerns about the sovereignty costs. However, our theoretical model and empirical findings imply that, depending upon the level of the judicial independence, partisan governments' preference for BITs may greatly change: at the minimum level of the rule of law, right-wing governments are more likely to sign BITs (than left-wing governments). However, with the stronger rule of law, will the right-wing governments increasingly lose their incentives to sign BITs. [further implications]

Figure 3 illustrates this strong interaction effect between the rule of law and partisan governments. It plots the survival curves for the left and the right, each with the maximum and the minimum scores of *law and order*. For right-wing host governments, when they have the maximum rule of law, they are less likely or at least not more likely to sign BITs than when they have only the minimum level of the rule of law. By contrast, for left-wing governments, the effects of the rule of law are evidently positive and substantially greater. Host governments with the maximum-rule-of-law are likely to sign BITs about three times faster than those with the minimum level rule of law.

### Figure 3 about here

Table 1 also presents the results regarding control variables. All three host controls, which are believed to be inducing factors for foreign investors, namely, democracy, big market size, and growing economy, turn out to have significantly positive impacts on BIT's signing.<sup>7</sup> The results are not necessarily consistent with the claim by EGS (2006) that BIT signing has primarily been driven by the competition among host countries. To be consistent with their story, those host countries that are endowed with favorable traits such as the large market and the booming economy should be under lesser pressure to negotiate BITs with capital-exporting countries than those without such factors. It is not

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<sup>7</sup>The results of GDP growth are particularly interesting, given that EGS (2006) reports significantly negative effects for that same variable in their analysis. This may be due to the difference in the time coverage. Their analysis covers from 1960 to 2000 while ours begins in 1975 and ends in 2007.

clear why those characteristics are highly associated with greater, rather than smaller, odds of signing BITs. More attractive host countries may be more eager to sign BITs to take advantage of those favorable endowments. Or, equally plausible is that they are more sought after as a BIT partner by potential home countries.

The rest of the results seems generally consistent with our expectations. Those home countries that have been actively involved in outgoing FDI are significantly more likely to be signatories of BITs. Dyadic variables are also highly significant. On one hand, BITs are more likely to be formed between a pair with a greater income difference than a pair with a similar income level. On the other hand, BITs are far more likely (239% more likely) to be signed between countries from the same region than from different regions. This suggests that signing BITs is driven by more than a narrow economic logic. Countries seem to choose to pair with one another through BITs building on pre-existing ties such as geographic proximity, cultural similarities, and trade and investment relations.

“Diffusion through region,” measured as ‘the number of BITs by region,’ is also found to be highly significant. When many neighbors in the region conclude BITs with capital-exporting countries, the host state appears to follow suit out of regional peer pressures. We cannot tell what the precise nature of those pressures is; it may reflect competition, learning, or simple mimicking among co-regional countries.

Finally, the negative coefficients on the global number of BITs and on the global average FDI inflows merit some comments. We interpret these as a reflection of the historical trends of BITs and FDI over the past decades. Any given pair of countries was more likely to sign a BIT when there were only a few BITs in effect; but that probability has decreased over time as a lot more BITs were signed worldwide. Similarly, as a simple matter of timing, BITs signing probability did not begin to decline until FDI began to pour into developing countries in the 1990s. Regardless, these findings seem inconsistent with the competition theory as well. If competition was the primary driver of BIT signing, host countries should be more compelled to get on the bandwagon by signing BITs when there are a greater number of BITs going into effect as well as when many countries receive a greater amount of FDI, situations where global competition over FDI seems

on the rise. On the contrary, countries are significantly less likely to enter into BITs under such circumstances, again a pattern that is hard to explain using the competition framework.

### 4.3 Robustness Checks

We check the robustness of the findings by restricting the scope of irrelevant dyads to OECD pairs (Model 2), using the un-updated UNCTAD dataset in which most recent BITs are recorded (Model 3), and measuring as the dependent variable the elapsed time until a BIT goes into effect (Model 4). Table 2 reports the results from Models 2 to 4.

**Table 2 about here**

The key findings remain unchanged throughout the different models. In Model 2 the interactive effects for the middle income status and the IMF status are not significant at conventional levels but are still correctly signed. Other than that, all three  $\alpha$  variables exhibit the predicted patterns in relation to the *law and order* variable. In particular, the highly significant results for the right-wing government variable turn out to be robust across different model specifications, offering additional confidence on our theoretical model. Moreover, it is worth noting that our predictions are also durably supported by the evidence from ratified BITs, ones that have actual legal effects (Model 4). Since we believe that host governments as well as foreign investors make their strategic choices “in the shadow of law,” it is reassuring that all the three  $\alpha$  variables register their strong interactive effects with rule of law on when to make BITs legally binding.

## 5 Conclusion

We now live in a world that has been more legalized than ever before, and there is little sign that this trend of the legalization of world politics might be reversed in any near future (Goldstein, Kahler, and Simmons 2000). The proliferation of BITs and the

growing use of international arbitral institutions by multinational corporations to settle a dispute with the host states in recent years attest to such a conviction. If the rule of law is to govern international relations, the concept of sovereignty, traditionally understood as being subject to no higher legal authority, needs to be reconstructed. Why do sovereign states voluntarily agree to enter into such an agreement that will even undermine their legal supreme authority? This paper seeks to advance our understanding of this crucially important question.

In particular, we shed further light on the conditions under which states are more willing to sign BITs by modeling strategic interactions between potential host states and prospective foreign investors. By highlighting an inherent tradeoff faced by host states between increasing FDI inflows and minimizing sovereignty costs and their decisions whether to sign BITs being made “in the shadow of international law,” we were able to answer some of the empirical puzzles with which the previous studies have been wrestling. If host countries want to sign BITs to attract more FDI inflows, why in the world are those hosts in desperate need of foreign capital not always among those who first sign them? If BITs are to make up for the lack of local legal credibility, why do the host governments with greater legal independence seem more willing to negotiate BITs? The key insight from our model provides answers to these questions. Host states with stronger preference for FDI will be more eager to sign BITs so long as the benefits from signing a BIT make up for their lack of domestic rule of law. Likewise, host states with the higher rule of law are actually more willing to sign BITs than those with the lower rule of law when they are not strongly concerned about FDI. When there is only small payoffs expected from BITs, countries with the higher-rule-of-law have relatively little to lose from a delegation of power, and therefore are more likely to do so than those with little domestic legal credibility.

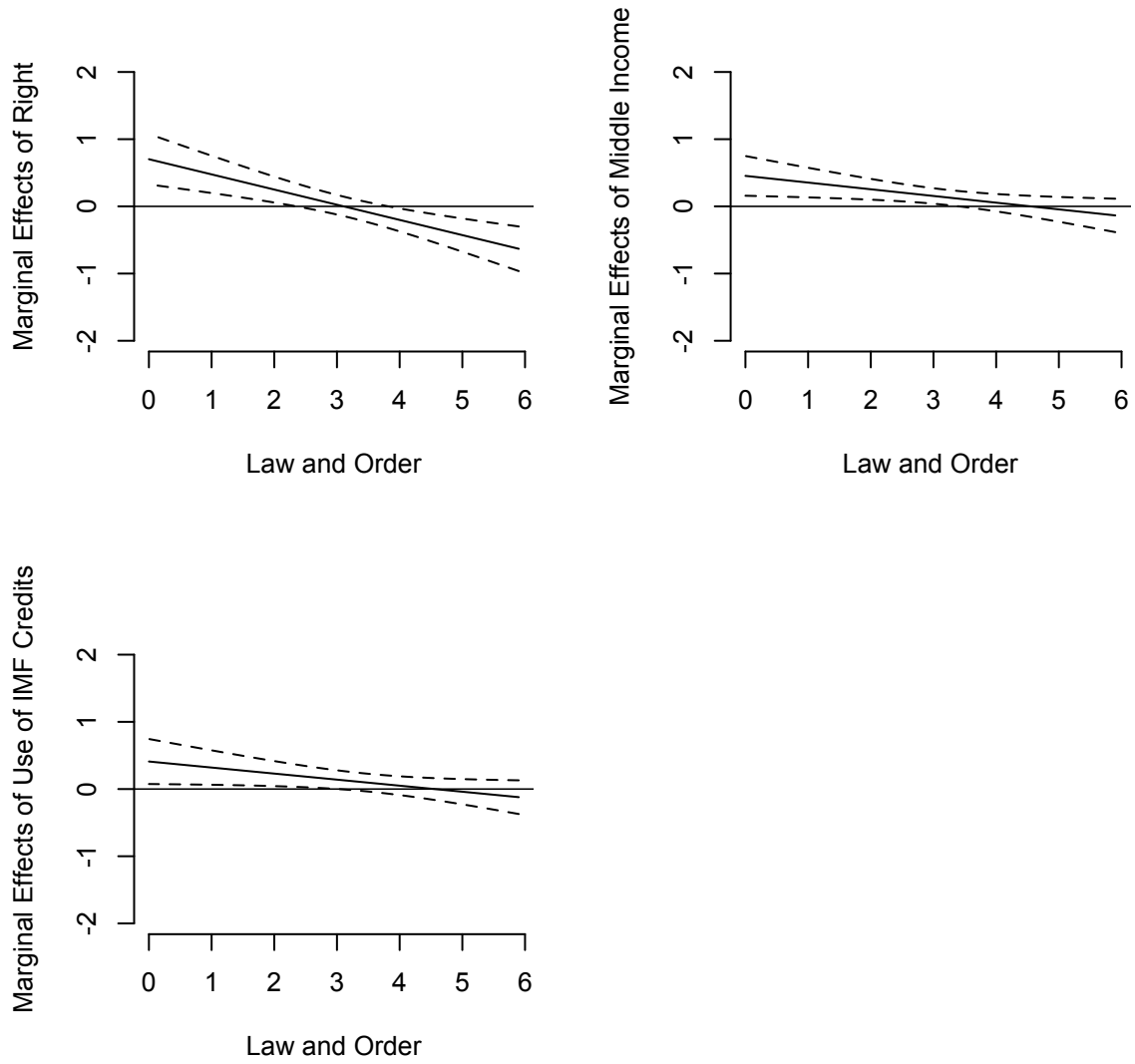


Figure 1: Marginal Effects of  $\alpha$



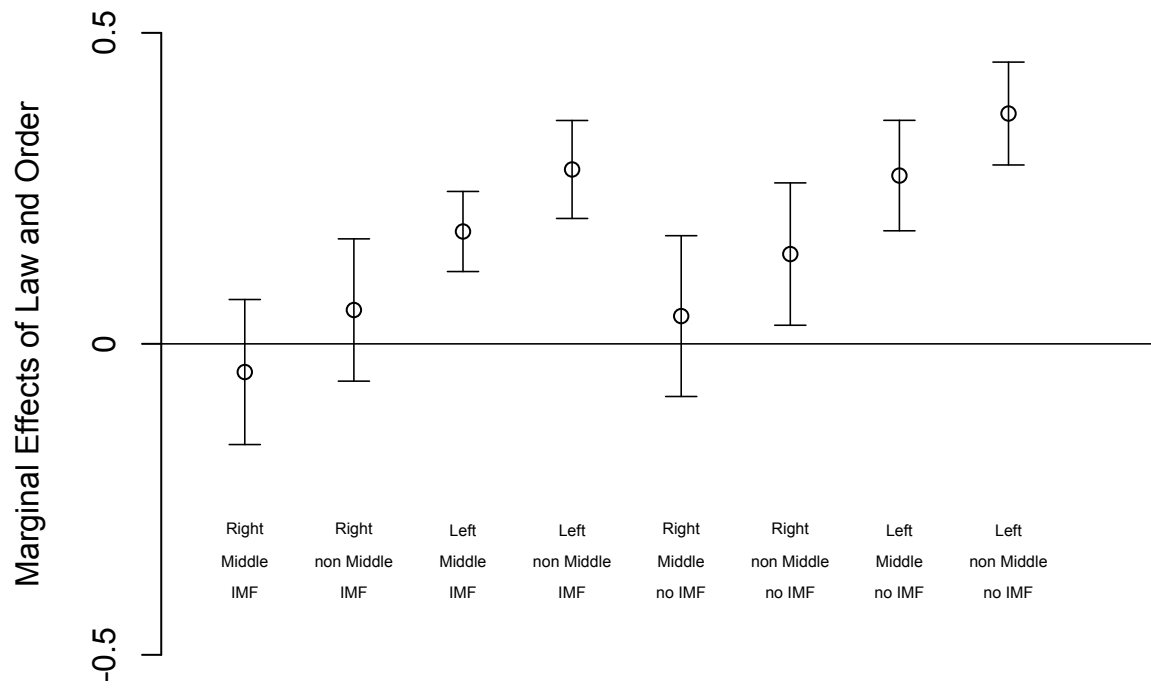


Figure 2: Marginal Effects of Law and Order

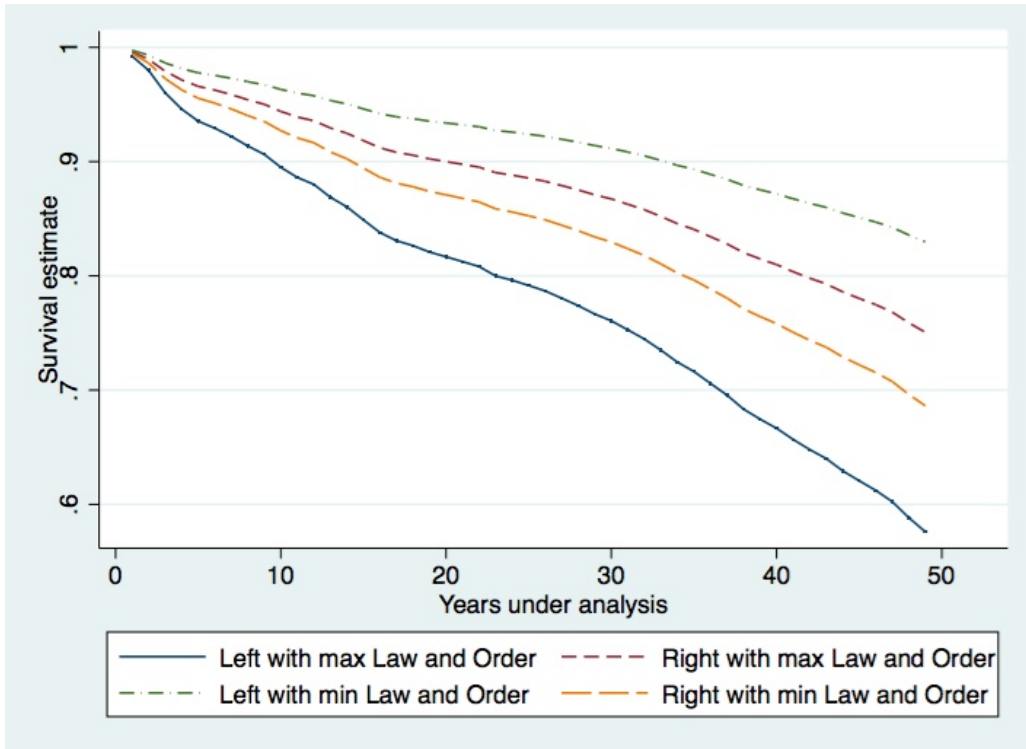


Figure 3: Survival Estimates for the Left and the Right

Table 1: A Cox Model of BIT Signings

Variables	Hazard.Ratio	Robust.Std. Err.
<i>Host variables</i>		
Rule of law	1.45***	(0.06)
Right-wing government	1.20**	(0.11)
Rule of law $\times$ Right	0.80***	(0.04)
Middle income country	1.25**	(0.09)
Rule of law $\times$ Middle income	0.91**	(0.04)
Use of IMF credits	1.23**	(0.11)
Rule of law $\times$ IMF	0.91**	(0.04)
Democracy	1.01*	(0.01)
GDP (LN)	1.36***	(0.02)
GDP growth	1.02***	(0.003)
<i>Home variables</i>		
Net FDI outflows	1.04***	(0.01)
<i>Diffusion variables</i>		
Number of BITs, by year	0.99***	(0.002)
Number of BITs, by region by year	1.02***	(0.002)
Cumulative number of BITs	1.00***	(0.000)
Cumulative number of BITs, squared	0.99***	(0.000)
Cold War	0.85	(0.15)
Global FDI net inflows	0.88**	(0.05)
<i>Dyadic variables</i>		
Dyad from same region	2.39***	(0.15)
$\Delta$ GDP per cap between Home and Host	1.03***	(0.003)
Number of observations = 127,014		
Number of dyads = 8,803		
Number of BITs = 1,483		
Log likelihood = -11038.259		

Table 2: Robustness Checks

	Model.2	Model.3	Model.4
Host rule of law	1.31*** (0.05)	1.41*** (0.06)	1.41*** (0.06)
Host right-wing government	1.25*** (0.11)	1.22** (0.10)	1.20* (0.11)
Host rule of law $\times$ Right	0.83*** (0.04)	0.82*** (0.04)	0.89** (0.05)
Host middle income country	1.20*** (0.08)	1.21*** (0.08)	1.37*** (0.11)
Host rule of law $\times$ Middle income	0.95 (0.04)	0.90** (0.04)	0.90** (0.04)
Host use of IMF credits	1.22** (0.10)	1.22** (0.10)	0.94 (0.09)
Host rule of law $\times$ IMF	0.997 (0.04)	0.92* (0.04)	0.90** (0.04)
Host democracy	1.00 (0.004)	1.01* (0.005)	1.02*** (0.01)
Host GDP (LN)	1.36*** (0.02)	1.34*** (0.02)	1.32*** (0.02)
Host GDP growth	1.01*** (0.004)	1.02*** (0.004)	1.02*** (0.003)
Home net FDI outflows	1.04*** (0.007)	1.04*** (0.007)	1.05*** (0.01)
Number of BITs, by year	0.99*** (0.002)	0.99*** (0.002)	1.00 (0.002)
Number of BITs, by region by year	1.02*** (0.002)	1.02*** (0.002)	1.03*** (0.002)
Cumulative number of BITs	1.00** (0.000)	1.00*** (0.000)	0.99 (0.000)
Cumulative number of BITs, squared	0.99*** (0.000)	0.99** (0.000)	0.99 (0.000)
Cold War	0.80 (0.13)	0.80 (0.13)	0.72 (0.16)
Global FDI net inflows	0.90** (0.05)	0.91* (0.05)	0.96 (0.05)
Dyad from same region	2.32*** (0.14)	2.32*** (0.14)	2.26*** (0.15)
$\Delta$ GDP per cap Home and Host	13 1.03*** (0.003)	1.03*** (0.003)	1.03*** (0.003)
Number of observations	134,165.	127,982.	132,963.
Number of dyads	9,240.	8,821.	8,949.
Number of BITs	1,644.	1,526.	1,249.
Log likelihood	-12362.771	-11424.867	-9241.3638