

# Do Bilateral Investment Treaties Increase Foreign Direct Investment to Developing Countries?

ERIC NEUMAYER and LAURA SPESS \*

*London School of Economics and Political Science, UK*

**Summary.** — Foreign investors are often skeptical toward the quality of the domestic institutions and the enforceability of the law in developing countries. Bilateral investment treaties (BITs) guarantee certain standards of treatment that can be enforced via binding investor-to-state dispute settlement outside the domestic juridical system. Developing countries accept restrictions on their sovereignty in the hope that the protection from political and other risks leads to an increase in foreign direct investment (FDI), which is also the stated purpose of BITs. We provide the first rigorous quantitative evidence that a higher number of BITs raises the FDI that flows to a developing country. This result is very robust to changes in model specification, estimation technique, and sample size. There is also some limited evidence that BITs might function as substitutes for good domestic institutional quality, but this result is not robust to different specifications of institutional quality.

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**Key words** — foreign direct investment, bilateral investment treaties, institutional quality, protection, risk

## 1. INTRODUCTION

Developing countries sign bilateral investment treaties (BITs) in order to attract more foreign direct investment (FDI). In recent decades, BITs have become “the most important international legal mechanism for the encouragement and governance” of FDI (Elkins, Guzman, & Simmons, 2004, p. 0). The preambles of the thousands of existing BITs state that the purpose of BITs is to promote the flow of FDI and, undoubtedly, BITs are so popular because policy makers in developing countries believe that signing them will increase FDI. But do these treaties fulfil their stated purpose and attract more FDI to developing countries that submit to the obligations of a BIT? Despite the large and increasing number of BITs concluded, there exists very little evidence answering this question. Most existing scholarships, typically written with a legal perspective, simply restrict themselves to an analysis of the BIT practice of one country or certain similar provisions in a range of BITs (Vandeveld, 1996, p. 545). This omission is strange given that the question is of great importance to developing countries. They invest time and

other scarce resources to negotiate, conclude, sign, and ratify BITs. Such treaties represent a nontrivial interference with the host countries’ sovereignty as they provide protections to foreign investors that are enforceable via binding investor-to-state dispute settlement. While the motivations driving developing countries to incur these costs may be varied (see Elkins *et al.*, 2004; Guzman, 1998; Neumayer, 2005), the costs might be justified if the ultimate outcome is an increase in the inward flow of FDI.<sup>1</sup> But is this what actually occurs?

In the absence of hard, quantitative evidence, some observers have been rather pessimistic toward the effect of BITs on FDI location. Sornarajah (1986, p. 82), for example, suggests that “in reality attracting foreign investment depends more on the political and economic climate for its existence rather than on the creation of a legal structure for its protection.” An expert group meeting sponsored by the

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United Nations Conference on Trade and Development (UNCTAD) in 1997 reportedly held a similar position (Raghavan, 1997). Supportive of this view is that some major hosts of FDI such as Brazil or Mexico for a long time were reluctant to sign BITs. As UNCTAD (1998, p. 141) has put it in a review of BITs from almost a decade ago: "There are many examples of countries with large FDI inflows and few, if any, BITs." And yet, most developing countries have signed a great many BITs by now. Is there evidence that those that have signed more BITs have also managed to attract more FDI?

Two studies analyze this issue over the period 1980–2000 (Hallward-Driemeier, 2003; Tobin & Rose-Ackerman, 2005) and one over the period 1991–2000 (Salacuse & Sullivan, 2005). The first study by Hallward-Driemeier (2003) does not find any statistically significant effect. The second study by Tobin and Rose-Ackerman (2005) finds a negative effect at high levels of risk and a positive effect only at low levels of risk, with the majority of developing countries falling into the high-risk category. The third study by Salacuse and Sullivan (2005) finds a positive effect only for United States BITs, but not for BITs from other countries of the Organization of Economic Co-operation and Development (OECD). The existing evidence goes against expectation and would suggest that the enormous amount of effort developing countries have spent on BITs has basically been wasted. One of the problems of existing studies is that they infer results from a rather restricted sample of countries (31 and 63, respectively) or are based on cross-sectional regressions. In contrast, we employ a much larger panel over the period 1970–2001, covering up to 119 countries. Importantly, we find a positive effect of BITs on FDI inflows that is consistent and robust across various model specifications. The effect is sometimes conditional on institutional quality, but is always positive and statistically significantly different from zero at all levels of institutional quality. To our knowledge, we provide the first hard evidence that there is a payoff to developing countries' willingness to incur the costs of negotiating BITs and to succumb to the restrictions on sovereignty contained therein.

Having demonstrated that BITs successfully increase the flow of FDI coming to a country, another important question that we address is whether BITs function as substitutes or complements to good institutional quality.

Naturally, one would expect them to be substitutes, that is, they provide security and certain standards of treatment to foreign investors where domestic institutions fail to deliver the same security and standards. However, some, like Hallward-Driemeier (2003) argue that BITs might only be seen as credible in an environment of good institutional quality. This would imply that BITs are most effective in countries where they are least needed. Our results provide some limited evidence that BITs might function as substitutes to poor institutional quality, which would suggest that they are most effective where such quality is low and that they are most successful where they are needed most. However, this result is not robust to different specifications of institutional quality.

This article is structured as follows: Section 2 briefly describes the well-known fact of increasing importance of foreign investment to developing countries, illustrates the growth of BITs, and analyzes the role of their main provisions for the promotion of FDI. We then review the three existing empirical studies and discuss their shortcomings, which we aim to overcome in our own analysis. After presenting our research design, we report results and test the sensitivity of results to important changes in model specification. The final section concludes.

## 2. BITS AND FDI

The flow of FDI has dramatically increased in the past several decades to become a major force in the worldwide allocation of funds and technology. Prior to 1970, world trade generally grew at a greater pace than that of FDI, but in the decades since then, the flow of FDI has grown at more than twice the pace of the growth of worldwide exports. By the early 1990s, the sales of worldwide exports would be eclipsed by the sales of foreign affiliates of multinational firms (Dunning, 1998). Not only has the flow of FDI increased worldwide, but the importance of FDI as a source of funds to developing countries in particular has also significantly increased. Private international flows of financial resources have become increasingly important to developing countries. In the 1980s, tight budgets, the debt crisis, and an overall decreased interest in providing traditional development aid led to a decline in official development assistance from the developed world. When capital flows to developing

countries began to rise again in the latter part of that decade, the flows were increasingly composed of FDI (Zebregs, 1998). Only very recently have aid flows slightly increased again in the wake of the so-called Monterrey Consensus. However, in 2003, FDI was the largest component of the net resource flows to developing countries, and this is bound to remain the case for some time to come (UNCTAD, 2003a). Although the developed countries remain both the dominating source and the major recipient of FDI, their dominance has decreased over time with developing countries in 2003 receiving almost 31% of FDI as opposed to only about 20% in the 1980s (UNCTAD, 2004). Indeed, FDI inflows per unit of GDP are much higher in many developing countries than in developed ones (UNCTAD, 2004). It was during this same period that BITs were introduced and eventually proliferated and in light of the importance of FDI, particularly to developing countries, the extent to which these two phenomena are causally related warrants careful scrutiny.

The first BITs appeared at the end of the 1950s. Some trace their history back to the treaties of friendship, commerce, and navigation (FCN) concluded by the United States over centuries (Salacuse, 1990). The FCN treaties had the expansion of international trade and the improvement of US foreign relations as their prime purpose, even though some investment provisions were later added (Guzman, 1998). BITs on the other hand are more clearly

focused on foreign investment protection. Germany, having lost almost all of her foreign investment during the Second World War, signed the very first BIT with Pakistan in 1959. After that, it took almost two decades before BITs gained momentum. By the end of the 1960s, there were 75 treaties, which rose to 167 by the end of the 1970s and to 389 by the end of the 1980s. The number of BITs worldwide began to grow rapidly in the 1990s, and by 2002, there were 2,181 BITs worldwide (UNCTAD, 2003a). Figure 1 shows the number of BITs signed per year and the cumulative number of BITs worldwide.

In order to explain the popularity of BITs, it is necessary to understand how they fit into the larger regime of state–foreign investor relations. Prior to the advent of BITs, the only protection for foreign investors was the customary international legal rule of minimum standard of treatment and the so-called Hull rule. The minimum standard of treatment rule provides only very minimal protection, as the name already suggests, while the Hull rule dealt exclusively with cases of expropriation and therefore provided no general protection against discriminatory treatment. It grew out of a dispute between Mexico and the United States in the 1930s over properties expropriated by the government of Mexico. In one of a series of diplomatic notes to the Mexican Minister of Foreign Affairs, the US Secretary of State Cordell Hull stated that “no government is entitled to expropriate private property, for whatever purpose,

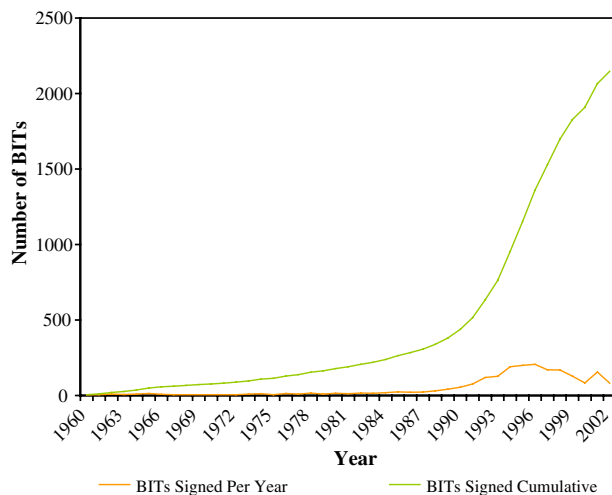


Figure 1. Proliferation of BITs 1960–2003. Source: UNCTAD (2003b).

without provision for prompt, adequate, and effective payment therefore" (Guzman, 1998, p. 641). Subsequently, the rule of "prompt, adequate, and effective" compensation would be the standard known as the Hull rule. However, it is disputed whether the Hull rule represents customary international law. Developing countries challenged its validity as part of their demands for a New International Economic Order with some success: Resolution 1803 of the UN General Assembly merely requires "appropriate compensation" for expropriation (Ginsburg, 2004). Guzman (1998, p. 641) suggests that by the mid-1970s "the Hull rule had ceased to be a rule of customary international law," if ever it had been one. The fact that there were several spectacular expropriations in the 1960s and 1970s taking place without what investors regarded as adequate compensation supports this view.<sup>2</sup> This raises a doubt on whether the Hull rule ever represented customary international law, for which conforming state practice is a requirement.

Surprisingly, even as many developing countries resisted the Hull rule, many of the same countries began to sign on to BITs that incorporate similar and indeed more far-reaching provisions. Guzman (1998) and Elkins *et al.* (2004) suggest that this seemingly contradictory behavior is explained by the increased competition among developing countries for FDI from developed countries. Collectively, they would be better off refusing to sign any BIT and retaining as much control over their assets as possible, which explains their resistance to multilateral investment treaties at fora such as the UNCTAD where they can collectively express and organize their interests. In a classic example of the prisoner's dilemma, however, the individual country benefits from being able to provide credible commitments to investors. In the context of limited multilateral or customary protection for investors, the individual country gains a competitive advantage as an investment location by submitting to a BIT. Further, when a less developed country's neighbor or economic competitor signs such an agreement, in order to remain competitive they must sign one as well. Somewhat at odds with this explanation is that the latest trend is for developing countries to sign BITs among themselves. This has been a rather recent development, however, and the vast majority of existing BITs are concluded between a developed and a developing country.

The basic provisions of a BIT typically guarantee certain standards of treatment for the for-

eign investor (see Dolzer & Stevens, 1995; UNCTAD, 1998). By entering into a BIT, signatories agree to grant certain relative standard treatments such as national treatment (foreign investors may not be treated any worse than national investors, but may be treated better and, in fact, often are) and most-favored country treatment (privileges granted to one foreign investor must be granted to all foreign investors). They also agree to guarantee certain absolute standards of treatment such as fair and equitable treatment for foreign investors in accordance with international standards after the investment has taken place. BITs typically ban discriminatory treatment against foreign investors and include guarantees of compensation for expropriated property or funds, and free transfer and repatriation of capital and profits. Further, the BIT parties agree to submit to binding dispute settlement, should a dispute concerning these provisions arise (UNCTAD, 1998). Ostensibly, these provisions should secure some of the basic requirements for credible protection of property and contract rights that foreign investors look for in host countries. They should also protect foreign investors against political and other risks highly prevalent in many developing countries. Far from being neutral, foreign investors are often granted higher security and better treatment than domestic investors (Vandeveld, 1998).

The basic provisions of BITs are all direct answers to the fundamental "holdup" or "dynamic inconsistency" problem that faces developing countries attempting to attract FDI. The dynamic inconsistency problem arises from the fact that although host countries have an incentive to promise fair and equitable treatment beforehand in order to attract foreign investment, once that investment is established and investors have sunk significant costs, the host country's incentive is to exploit or even expropriate the assets of foreign investors. Even those host countries that are willing to forego taking advantage in these circumstances will find it very difficult to credibly commit to their position. Many developing countries have adopted domestic legal changes over the last decade or so with a view toward encouraging a greater FDI inflow (UNCTAD, 2004). However, these domestic legal rules cannot substitute for the commitment device offered by entering into a legally binding bilateral treaty. BITs, and their binding investor-to-state dispute settlement provision in particular, are meant to overcome the dilemma facing host

countries who are willing to denounce exploiting foreign investors after the investment has already been undertaken. Interestingly, at the same time as BITs flourished in the 1980s and 1990s, outright expropriations of foreign investors, which were common during the 1960s and 1970s, practically ceased to take place (Minor, 1994).

The extent of interference with domestic regulatory sovereignty that developing countries succumb to in signing BITs is enormous. In fact, virtually any public policy regulation can potentially be challenged through the dispute settlement mechanism as long as it affects foreign investors. Often, foreign investors need not have exhausted domestic legal remedies and can thus bypass or avoid national legal systems, reaching straight for international arbitration, where they can freely choose one of the three panelists, where their consensus is needed for one other panelist, and where they can expect that the rules laid out in the BITs are fully applied (Peterson, 2004). This contrasts with domestic courts, where investors have no say on the composition of judges and where domestic rules might trump BIT provisions. BITs have been criticized for not conforming to a truly liberal economic model by failing to ban distorting government policies such as protective tariffs or tax incentives for foreign investors (Vandeveld, 2000). However, even critics such as Vandeveld (2000, p. 499) admit that "BITs seriously restrict the ability of host states to regulate foreign investment."<sup>3</sup> In concluding BITs, developing countries are therefore "trading sovereignty for credibility" (Elkins *et al.*, 2004, p. 4).

BITs are therefore an important instrument of protection to foreign investors, for which there is currently not much legal alternative. Only few regional free trade agreements contain investment protection provisions like the North American Free Trade Agreement (NAFTA). The World Trade Organization's (WTO) Agreement on Trade-Related Investment Measures (TRIMs Agreement) imposes only rudimentary disciplines on the regulation of foreign investment that are by far not as comprehensive as and fall much short of provisions contained in BITs.

Of course, not all BITs are identical in their provisions. Some developed country investors such as the United States insist on some limited rights of its investors to establish investment in host countries in the first place, whereas investor's rights in most BITs are restricted to fair

and equitable treatment after the investment has already taken place and provide no right of entrance. United States BITs often prohibit certain performance requirements such as local content, export, and employment requirements beyond the requirements contained in the WTO's TRIMs Agreement, whereas BIT programs of other developed countries do not contain such provisions (Vandeveld, 1998). Conversely, some nondeveloped countries such as China and Eastern European countries have successfully managed to restrict the compulsory dispute settlement provisions to disputes concerning expropriation or the compensation thereof (Peters, 1996, p. 107). However, by and large, BITs tend to be rather similar in their provisions.

BITs are also unlikely to be identical in their effect on incoming FDI flows. In principle, BIT provisions only protect investors from the signatory states to whom binding commitments are made.<sup>4</sup> One would therefore expect that signing a BIT with a major capital exporter such as Germany or the United States has a larger impact on FDI inflows than signing a BIT with minor capital exporters such as New Zealand or Portugal. However, the signing of BITs sends out a signal to potential investors that the developing country is generally serious about the protection of foreign investment. The encouragement of FDI flows therefore need not be restricted to investors from developed countries that are BIT partners of the developing country. Instead, BITs can have positive spill-over effects. How important is the signaling effect, which benefits investors from all countries, compared to the commitment effect, which only relates to investors from BIT partner countries, is difficult to say. Our research design, described in detail below, does not restrict the effect of BIT signature on FDI to investment from partner countries and accounts for differences in the size of potential FDI to which the developing country has made binding commitments by weighting BITs with the relative importance of the developed country partner as a capital exporter.

### 3. REVIEW OF OTHER STUDIES

It is most astonishing that despite the rising number of BITs, there are only three other serious studies examining the effect of such treaties on the location of FDI.<sup>5</sup> The first study has been undertaken by Hallward-Driemeier



(2003), looking at the bilateral flow of FDI from 20 OECD countries to 31 developing countries over the period 1980–2000. Her research design is dyadic, consisting of up to 537 country pairs. Using fixed-effects estimations, she finds that the existence of a BIT between two countries does not increase the flow of FDI from the developed to the developing signatory country. This is true whether the dependent variable is measured as absolute flows, flows divided by host country's GDP, or the share of the source countries' FDI outflow. Interacting the BIT variable with various measures of institutional quality, she finds a positive coefficient of the interaction term that is often statistically significant. This would suggest that, contrary to theoretical expectations, BITs are complements to good institutional quality and therefore do not perform their original function, namely to provide guarantees to foreign investors in the absence of good domestic institutional quality.

In the second study, Tobin and Rose-Ackerman (2005) analyze the impact of BITs on general nondyadic FDI inflows, also in a panel from 1980 to 2000, but with data averaged over five-year periods, covering 63 countries. While both studies draw upon data provided by International Country Risk Guide (ICRG), Hallward-Driemeier (2003) uses individual components of institutional quality, whereas Tobin and Rose-Ackerman (2005) use the aggregate political risk measure, which includes many more components than institutional quality, including some that are not directly related to political risk (such as, among others, religious and ethnic tensions, armed conflict, and socioeconomic conditions such as unemployment and poverty). In a fixed-effects model, Tobin and Rose-Ackerman find that a higher number of BITs either in total or signed with a high income country *lowers* the FDI a country receives as a share of global FDI flows at high levels of risk and raises the FDI only at low levels of risk. In an additional dyadic analysis of 54 countries, they fail to find any statistically significant effect of BITs signed with the United States on FDI flows from the United States to developing countries, either conditionally on the level of political risk or unconditionally.

The third study provides three cross-sectional analyses of FDI inflows to up to 99 developing countries in the years 1998, 1999, and 2000, respectively, as well as a fixed-effects estimation of the bilateral flow of FDI from the United

States to 31 developing countries over the period 1991–2000. Salacuse and Sullivan (2005) find the signature of a BIT with the United States to be associated with higher FDI inflows in both types of estimations, whereas the number of BITs with other OECD countries is always statistically insignificant.

The three studies suffer from a number of shortcomings that we try to improve on in our own study. Hallward-Driemeier's (2003) model presumes that a BIT will only have an effect on the flow of FDI from one developed country, namely the signatory, to the developing country. However, this presumption neglects the signaling effect of BITs (Elkins *et al.*, 2004, p. 21). As pointed out in the preceding section, in concluding a BIT, the developing country commits to protect foreign investments, explicitly only the FDI from the signatory developed country, but implicitly it also signals its willingness to protect all foreign investment. There are therefore likely to be positive spill-over effects from signing a BIT. Hallward-Driemeier's modeling cannot capture the potential of BITs to attract more FDI from other developed nonsignatory countries as well, and consequently may underestimate the effect that signing a BIT has on the inward flow of FDI. In addition to not capturing this potentially important spill-over effect, the dyadic design also has another major disadvantage. Data on bilateral FDI flows are very sparse, and consequently, the size of the sample is significantly limited by this choice. A sample of 31 developing countries is everything but representative. Similar arguments apply to Salacuse and Sullivan's (2005) fixed-effects analysis.<sup>6</sup> Our own study draws from a much larger and more representative sample.

Where Tobin and Rose-Ackerman (2005) do not use a dyadic research design, the paucity of bilateral FDI flow data does not impose a binding constraint on sample size. Nevertheless, for no clear reason, their sample consists of only 63 countries. In comparison, our own sample is both deeper and wider. It covers the period 1970, the first year for which UNCTAD provides FDI data, to 2001, the last year for which we have available data. It also covers up to 119 developing countries, which amounts to a much more representative sample. The countries included in our sample are listed in Appendix A. Salacuse and Sullivan's (2005) cross-sectional analysis also has the advantage of a large sample size. However, by definition, this type of analysis cannot control for country-specific

unobserved heterogeneity, which is likely to be important, nor does it exploit the full information available from looking at FDI flows over a longer time period.

#### 4. RESEARCH DESIGN

##### (a) *Dependent variable*

As our main measure of FDI attractiveness, we use the absolute amount of FDI going to a developing country, converted to constant US\$ of 1996 with the help of the US GDP deflator. The definition of a developing country follows World Bank classification. We use absolute FDI flows because if one were to use FDI inflow as a percentage of host country's GDP instead, the measure would capture changes in the relative importance of foreign investment to the host country, but not changes in inflows directly. Quite possibly, the worldwide increase in the rate of the conclusion of BITs is partly responsible for the increase in overall FDI going to developing countries. However, there is always the danger that one finds a statistically significant relationship between two upward trending variables that is spurious. We deal with this potential problem in two ways: First, we employ year dummies to account for any year-to-year variation in total FDI flows unaccounted for by our explanatory variables, which should mitigate potential spuriousness of any significant results. Second, as an alternate dependent variable to the absolute amount of FDI, we use the FDI inflow a country receives relative to the sum of FDI going to developing countries. Since this variable is not trending over time, no year-specific time dummies are included in these sets of estimations. FDI inflow as a share of developing country FDI as the dependent variable captures the relative attractiveness of developing countries as hosts for FDI and explicitly allows for competition among them for a fixed sized cake of FDI to be divided.<sup>7</sup> Ideally, one would like to disaggregate FDI flows according to economic sectors. Unfortunately, no comprehensive information is available for a large panel of countries.

We take the natural log of the dependent variable to reduce the skewness of its distribution. This increases the model fit substantially. To do so, we need to recode a small number of negative FDI flows. Negative FDI flows essentially imply "instances of reverse investment or disin-

vestment" (UNCTAD, 2001, p. 292). In our analysis, we set negative FDI flows equal to positive FDI flows of US\$1. If instead one were to discard all negative flows, then results are hardly affected.

##### (b) *Explanatory variables*

Our main explanatory variable is the cumulative number of BITs a developing country has signed with OECD countries, weighted by the share of outward FDI flow the OECD country accounts for relative to total world outward FDI flow.<sup>8</sup> The weighting is to account for differences in the size of potential FDI a developing country makes protection commitments for via signing a BIT. We exclude BITs signed between developing countries since FDI flows between developing countries are rare. Tobin and Rose-Ackerman (2005) do not weight the cumulative BIT variable by the share of outward FDI flow of the developed country partner, but our results are similar if we include the unweighted BIT variable instead.<sup>9</sup> They also take the natural log of the cumulative BIT variable. We keep the variable in its level form, not least because the log of zero (BITs) is undefined.

Our control variables are very similar to the ones used by Hallward-Driemeier (2003) and Tobin and Rose-Ackerman (2005). They are also among the ones more consistently found to be determinants of FDI flows (Chakrabarti, 2001). We include the natural log of per capita income, the log of total population size, and the economic growth rate as indicators of market size and market potential (data from World Bank, 2003a, 2003b).<sup>10</sup> Developing countries, which have concluded a free trade agreement with a developed country, might receive more FDI as it is easier to export goods back into the developed or other countries. Such agreements sometimes also contain provisions on policies that might be beneficial to foreign investors. We account for this with a dummy variable indicating whether a country is a member of the WTO as well as a variable counting the number of bilateral trade agreements a developing country has concluded with the United States, the European Community/European Union, or Japan, based on information contained in WTO (2004) and EU (2004).<sup>11</sup> The inflation rate is a proxy variable for macroeconomic stability. In sensitivity analysis, we also included trade openness and the secondary enrollment ratio, but these two variables are

not included in the main analysis due to loss of observations following their inclusion. Data are taken from [World Bank \(2003a\)](#). We employ a measure of natural resource intensity to control for the fact that, all other things being equal, large natural resources are a major attractor to foreign investors. Our measure is equal to the sum of rents from mineral resource and fossil fuel energy depletion divided by gross national income, as reported in [World Bank \(2003b\)](#). Rents are estimated as  $(P - AC) * R$ , that is, as price minus average cost multiplied by the amount of resource extracted, an amount known as total Hotelling rent in the natural resource economics literature.

There is a long tradition of studies analyzing the effect of political stability and institutional quality on FDI inflows (see, e.g., [Alesina & Perotti, 1996](#); [Globerman & Shapiro, 2002](#); [Perry, 2000](#); [Schneider & Frey, 1985](#); [Wheeler & Mody, 1992](#)). We include five different measures of institutional quality in separate estimations together with interaction effects with the BIT variable. First, we use the political constraints (POLCON) index developed by [Henisz \(2000\)](#). Henisz has designed his index as an indicator of the ability of political institutions to make credible commitments to an existing policy regime, which he argues is the most relevant political variable of interest to investors. Building on a simple spatial model of political interaction, the index makes use of the structure of the government in a given country and the political views represented by the different levels of that government (i.e., the executive and the lower and upper legislative chambers). It measures the extent to which political actors are constrained in their choice of future policies by the existence of other political actors with veto power who will have to consent. Using information on party composition of the executive and the legislative branches allows taking into account how alignment across branches of the government and the extent of preference heterogeneity within each legislative branch impacts the feasibility of policy change. Scores range from 0, which indicates that the executive has total political discretion and could change existing policies at any point of time, to 1, which indicates that a change of existing policies is totally infeasible. Of course, in practice, agreement is always feasible, so the maximum score is less than 1.

The remaining measures of institutional quality are all compiled from the ICRG, published by the Political Risk Services (PRS) Group

([www.prsgroup.com](http://www.prsgroup.com)). They are the investment profile index, the index of government stability, an index of law and order as well as ICRG's composite political risk index. These data are available from 1984 onwards and have the widest country coverage of all the sources for country risk ratings. The composite political risk index incorporates the other indices. The index varies from 0 (high risk) to 100 (low risk). The full composite political index or a comparable measure is more commonly used in studies investigating the determinants of FDI and BITs than the individual subcomponents (see, e.g., [Alesina & Perotti, 1996](#); [Tobin & Rose-Ackerman, 2005](#); [UNCTAD, 1998](#); [Wheeler & Mody, 1992](#)). However, as mentioned already, it also includes many items that are not strictly speaking relevant to institutional quality such as indicators of socioeconomic conditions, measures of conflict and ethnic tensions, and measures of military and religious involvement in the political process—see [Appendix B](#) for a detailed description of this variable. The composite index is therefore strictly speaking not purely a measure of institutional quality. For this reason, we also employ the three subcomponents most relevant to investors and most closely connected to BIT provisions. The investment profile index varies from 0 to 12, 12 representing very low risk and 0 indicating very high risk. The index is made of ratings on three separate elements, each receiving equal weight: contract viability (risk of expropriation), profit repatriation, and payment delays. Similar to the investment profile index, the government stability index varies from 0 (high risk) to 12 (low risk) and is composed of three elements that receive equal weight: government unity, legislative strength, and popular support. The law and order index runs from 0 (worst) to 6 (best) and consists of a law component measuring the strength and impartiality of the legal system and an order component measuring the extent of popular observance of the law.

### (c) Estimation technique

We estimate both random-effects and fixed-effects models, in which case we can employ robust standard errors. We suspect that there are factors making a country attractive to foreign investors that are not captured by our explanatory variables and that are (approximately) time invariant, such as colonial history, culture, language, climate, geographical distance to the centers of the Western developed world, legal



restrictions on inward FDI, etc. Hausman tests, which test the random-effects assumption that these time-invariant factors are uncorrelated with the explanatory variables, by and large reject the assumption. We therefore focus on the fixed-effects estimation results. To mitigate potential reverse causality problems, we lag all explanatory variables by one period. Ideally, one would like to tackle this problem more comprehensively with the help of instrumental variable regression. However, practically all explanatory variables are potentially subject to reverse causality, and it would be simply impossible to find adequate and valid instruments. Tables 1a and 1b provide summary descriptive variable information together with a bivariate correlation matrix. Variance inflation analysis did not suggest reason for concern with multicollinearity problems. As in any regressions analysis, there is of course always the possibility of omitted variable bias. For example, we cannot account for over-time changes in domestic legislation encouraging or discouraging FDI other than what is captured by BITs as there is no comprehensive information available. However, we see no reason why this or any other potentially omitted variable should be systematically correlated with our explanatory variables to an extent that our results would be significantly biased.

## 5. RESULTS

Table 2 presents random-effects estimation results for the logged amount of FDI in US\$

of 1996 flowing to a country as the dependent variable. Column I starts with POLCON as the measure of institutional quality. Most variables test in accordance with theoretical expectations. Countries with a higher cumulative number of BITs, richer countries with fast-growing economies, and larger populations receive more FDI. So do countries that are more intensive in natural resource extraction, that are members of the WTO and have a higher number of trade agreements with developed countries. A higher inflation rate deters FDI. The POLCON variable is statistically insignificant. How to interpret this result? With interaction terms included, one cannot interpret the coefficients on the individual components in the conventional way. Instead, the coefficient on POLCON in a model with a significant interaction term BITs \* POLCON is the effect of POLCON on FDI when the BIT variable is zero (see Braumoeller, 2004, for a nice exposition). It follows from our estimations that institutional quality as measured by POLCON has no effect on FDI in the absence of BITs. The interaction term is marginally significant, however, suggesting that institutional quality as measured by POLCON and BITs are complements since the positive effect of cumulative BIT signature is higher when the POLCON index is high as well.

In column II, we replace Henisz's (2000) policy constraints variable with the ICRG's composite political risk index (where higher values on the index mean lower risk). Note the significant drop in the number of observations. This is not so much due to a loss of countries

Table 1a. *Descriptive statistical variable information*

Variable	Obs.	Mean	Std. dev.	Min	Max
ln FDI flow	2,767	3.92	2.52	-4.69	10.78
ln FDI flow share	2,767	-7.06	2.45	-16.98	-1.17
BITs	2,767	23.97	26.98	0	99.34
ln GDP p.c.	2,767	7.93	0.83	5.64	9.72
ln population	2,767	15.72	1.88	10.62	20.99
Economic growth	2,767	0.01	0.07	-0.42	0.78
Inflation	2,767	65.78	684.46	-31.52	26,762.02
Resource rents	2,767	5.55	9.76	0	66.60
Bilateral trade agreements	2,767	0.07	0.26	0	2
WTO membership	2,767	0.67	0.47	0	1
POLCON	2,767	0.18	0.20	0	0.67
Composite political risk	1,331	58.71	14.27	11.50	94.17
Investment profile	1,351	6.03	1.91	1	11.13
Government stability	1,350	6.88	2.32	1	12
Law and order	1,349	3.09	1.27	0	6

Table 1b. *Bivariate correlation matrix*

	I	II	III	IV	V	VI	VI	VIII	IX	X	XI	XII	XIII	XIV	XV
I: ln FDI flow share	1.00														
II: ln FDI flow	0.95	1.00													
III: BITs	0.41	0.28	1.00												
IV: ln GDP p.c.	0.49	0.48	0.31	1.00											
V: ln population	0.43	0.45	0.21	−0.02	1.00										
VI: Economic growth	0.16	0.15	0.08	0.13	0.07	1.00									
VII: Inflation	−0.07	−0.06	−0.05	−0.07	0.02	−0.16	1.00								
VIII: Resource rents	0.09	0.14	−0.12	0.13	0.07	−0.04	0.02	1.00							
IX: Bilateral trade agreements	0.21	0.15	0.30	0.30	0.05	0.03	−0.03	0.04	1.00						
X: WTO membership	0.07	0.02	0.05	−0.03	0.02	−0.02	0.02	−0.21	−0.09	1.00					
XI: POLCON	0.36	0.28	0.16	0.41	−0.02	0.08	−0.02	−0.13	0.08	0.19	1.00				
XII: Investment profile	0.38	0.23	0.26	0.33	0.04	0.14	−0.12	−0.08	0.22	0.18	0.29	1.00			
XIII: Government stability	0.31	0.19	0.25	0.29	−0.02	0.14	−0.15	−0.09	0.20	0.20	0.24	0.49	1.00		
XIV: Law and order	0.35	0.17	0.37	0.28	0.07	0.15	−0.12	0.00	0.23	0.04	0.18	0.58	0.68	1.00	
XV: Composite political risk	0.40	0.28	0.28	0.38	0.03	0.15	−0.10	−0.05	0.24	0.03	0.22	0.58	0.35	0.46	1.00

included in the sample, which drops from 120 to 91, but due to the fact that we lose all observations before 1984, the first year for which this variable has been coded. Despite the substantial reduction in sample size, the weighted

sum of BITs variable is statistically significant with the expected positive sign. Results on the other variables are also relatively consistent in terms of sign and statistical significance of variables, but the trade agreement variables are no

Table 2. *Random-effects estimation results (logged FDI flows in 1996, in dollars)*

	I	II	III	IV	V
BITs	0.015 (5.34) <sup>***</sup>	0.031 (3.79) <sup>***</sup>	0.012 (2.17) <sup>**</sup>	0.020 (3.66) <sup>***</sup>	0.020 (3.96) <sup>***</sup>
ln GDP p.c.	0.548 (5.53) <sup>***</sup>	0.265 (1.68) <sup>*</sup>	0.238 (1.50)	0.294 (1.86) <sup>*</sup>	0.245 (1.64) <sup>*</sup>
ln population	0.506 (10.27) <sup>***</sup>	0.594 (6.98) <sup>***</sup>	0.626 (7.24) <sup>***</sup>	0.610 (7.08) <sup>***</sup>	0.625 (7.96) <sup>***</sup>
Economic growth	1.195 (2.52) <sup>**</sup>	1.683 (2.42) <sup>**</sup>	1.553 (2.19) <sup>**</sup>	1.602 (2.25) <sup>**</sup>	1.597 (2.26) <sup>**</sup>
Inflation	-0.0001 (2.07) <sup>**</sup>	-0.0001 (1.73) <sup>*</sup>	-0.0001 (1.46)	-0.0001 (1.65) <sup>*</sup>	-0.0001 (1.64)
Resource rents	0.025 (4.34) <sup>***</sup>	0.030 (3.61) <sup>***</sup>	0.023 (2.76) <sup>***</sup>	0.022 (2.62) <sup>***</sup>	0.021 (2.59) <sup>***</sup>
Bilateral trade agreements	0.343 (1.83) <sup>*</sup>	0.278 (1.34)	0.160 (0.72)	0.344 (1.56)	0.288 (1.34)
WTO membership	0.212 (1.98) <sup>**</sup>	-0.018 (0.12)	-0.024 (0.16)	0.066 (0.44)	0.137 (0.92)
POLCON	0.350 (1.17)				
BITs * POLCON	0.012 (1.78) <sup>*</sup>				
Composite political risk		0.011 (1.81) <sup>*</sup>			
BITs * composite political risk		-0.0002 (1.73) <sup>*</sup>			
Investment profile			0.091 (2.16) <sup>**</sup>		
BITs * investment profile			0.001 (1.08)		
Government stability				0.091 (2.34) <sup>**</sup>	
BITs * government stability				-0.001 (0.77)	
Law and order					0.247 (3.56) <sup>***</sup>
BITs * law and order					-0.001 (0.87)
Observations	2,767	1,346	1,369	1,368	1,367
Countries	120	91	91	91	91
Period	1970–2001	1984–2001	1984–2001	1984–2001	1984–2001
R-squared (overall)	0.46	0.49	0.50	0.49	0.51
Hausman test	28.58	72.11	68.46	73.93	90.24
	0.8659	0.0000	0.0000	0.0000	0.0000

Notes: Absolute *t*-values in parentheses. Year-specific time dummies included, but coefficients not reported. The Hausman test is asymptotically  $\chi^2$  distributed with *p*-values in brackets.

<sup>\*</sup> Significant at the 0.1% level.

<sup>\*\*</sup> Significant at the 0.05% level.

<sup>\*\*\*</sup> Significant at the 0.01% level.

longer statistically significant. There is one further important further exception: The interaction term between institutional quality and our BIT variable is now statistically significant with a negative coefficient sign. This would suggest that BITs function as substitutes for high domestic institutional quality since the positive

effect of cumulative BIT signature is higher when the ICRG composite index is low, that is, in high-risk environments. Importantly, while the positive effect of BITs on FDI decreases as political risk is reduced, the effect always remains positive, even at very low levels of risk.<sup>12</sup> In the remaining columns, we replace

Table 3. *Fixed-effects estimation results (logged FDI flows in 1996, in dollars)*

	I	II	III	IV	V
BITs	0.016 (4.23) <sup>***</sup>	0.033 (3.68) <sup>***</sup>	0.015 (2.93) <sup>***</sup>	0.025 (4.52) <sup>***</sup>	0.020 (3.98) <sup>***</sup>
ln GDP p.c.	1.916 (4.04) <sup>***</sup>	3.771 (4.37) <sup>***</sup>	3.304 (3.60) <sup>***</sup>	4.052 (4.47) <sup>***</sup>	3.691 (4.21) <sup>***</sup>
ln population	-1.344 (2.66) <sup>***</sup>	-4.942 (5.21) <sup>***</sup>	-4.513 (4.51) <sup>***</sup>	-5.176 (5.19) <sup>***</sup>	-5.033 (5.24) <sup>***</sup>
Economic growth	1.134 (1.81) <sup>*</sup>	2.372 (3.35) <sup>***</sup>	2.366 (3.13) <sup>***</sup>	2.343 (3.12) <sup>***</sup>	2.464 (3.24) <sup>***</sup>
Inflation	-0.0001 (3.16) <sup>***</sup>	-0.0001 (2.36) <sup>**</sup>	-0.0001 (2.18) <sup>**</sup>	-0.0001 (2.41) <sup>**</sup>	-0.0001 (2.48) <sup>**</sup>
Resource rents	0.030 (3.63) <sup>***</sup>	0.036 (2.96) <sup>***</sup>	0.031 (2.41) <sup>**</sup>	0.031 (2.47) <sup>**</sup>	0.028 (2.16) <sup>**</sup>
Bilateral trade agreements	0.532 (2.17) <sup>**</sup>	0.119 (0.66)	0.061 (0.32)	0.289 (1.44)	0.199 (1.02)
WTO membership	0.218 (1.98) <sup>**</sup>	-0.081 (0.52)	-0.111 (0.73)	-0.047 (0.31)	0.027 (0.18)
POLCON	0.233 (0.71)				
BITs * POLCON	0.011 (1.29)				
Composite political risk		0.014 (2.05) <sup>**</sup>			
BITs * composite political risk		-0.0003 (2.17) <sup>**</sup>			
Investment profile			0.117 (2.84) <sup>***</sup>		
BITs * investment profile			-0.000 (0.01)		
Government stability				0.128 (2.88) <sup>***</sup>	
BITs * government stability				-0.001 (2.12) <sup>**</sup>	
Law and order					0.290 (4.13) <sup>***</sup>
BITs * law and order					-0.002 (1.14)
Observations	2,767	1,346	1,369	1,368	1,367
Countries	120	91	91	91	91
Period	1970-2001	1984-2001	1984-2001	1984-2001	1984-2001
R-squared (within)	0.22	0.30	0.30	0.30	0.30

Notes: Absolute *t*-values in parentheses. Year-specific time dummies included, but coefficients not reported. Robust standard errors.

<sup>\*</sup> Significant at the 0.1% level.

<sup>\*\*</sup> Significant at the 0.05% level.

<sup>\*\*\*</sup> Significant at the 0.01% level.

the ICRG's composite index with the selected individual subcomponents. In column III, we look at a country's investment profile, in column IV at a country's governmental stability and in column V at its degree of law and order, respectively. Results are largely consistent with the ones for the ICRG composite index. Importantly, the weighted cumulative number of

signed BITs is always statistically significant with the expected positive sign. However, the interaction term is not statistically significant for these subcomponents of the ICRG composite index. The Hausman test fails to reject the random-effects assumption only in column I, which underlines the importance of controlling for country fixed effects. Table 3

Table 4. *Fixed-effects estimation results (logged FDI flows as share of developing country FDI)*

	I	II	III	IV	V
BITs	0.013 (3.47) <sup>***</sup>	0.035 (4.04) <sup>***</sup>	0.018 (3.33) <sup>***</sup>	0.027 (5.02) <sup>***</sup>	0.023 (4.65) <sup>***</sup>
ln GDP p.c.	3.008 (10.10) <sup>***</sup>	1.916 (3.13) <sup>***</sup>	1.754 (3.03) <sup>***</sup>	2.144 (3.42) <sup>***</sup>	2.047 (3.52) <sup>***</sup>
In population	-2.613 (11.45) <sup>***</sup>	-2.686 (5.13) <sup>***</sup>	-2.654 (5.66) <sup>***</sup>	-2.864 (5.37) <sup>***</sup>	-2.844 (5.98) <sup>***</sup>
Economic growth	1.334 (2.15) <sup>**</sup>	2.268 (3.18) <sup>***</sup>	2.348 (3.06) <sup>***</sup>	2.225 (2.93) <sup>***</sup>	2.146 (2.81) <sup>***</sup>
Inflation	-0.0001 (3.27) <sup>***</sup>	-0.0001 (2.33) <sup>**</sup>	-0.0001 (2.10) <sup>**</sup>	-0.0001 (2.38) <sup>**</sup>	-0.0001 (2.53) <sup>**</sup>
Resource rents	0.027 (3.47) <sup>***</sup>	0.032 (2.70) <sup>***</sup>	0.027 (2.18) <sup>**</sup>	0.028 (2.24) <sup>**</sup>	0.027 (2.18) <sup>**</sup>
Bilateral trade agreements	0.539 (2.25) <sup>**</sup>	0.216 (1.29)	0.113 (0.60)	0.343 (1.82) <sup>*</sup>	0.302 (1.65) <sup>*</sup>
WTO membership	0.133 (1.26)	-0.049 (0.31)	-0.075 (0.49)	-0.017 (0.11)	0.031 (0.20)
POLCON	0.184 (0.57)				
BITs * POLCON	0.008 (0.96)				
Composite political risk		0.013 (2.00) <sup>**</sup>			
BITs * composite political risk		-0.0003 (2.04) <sup>**</sup>			
Investment profile			0.108 (2.69) <sup>***</sup>		
BITs * investment profile			-0.000 (0.02)		
Government stability				0.104 (2.59) <sup>***</sup>	
BITs * government stability				-0.001 (2.11) <sup>**</sup>	
Law and order					0.231 (3.36) <sup>***</sup>
BITs * law and order					-0.002 (1.20)
Observations	2,767	1,346	1,369	1,368	1,367
Countries	120	91	91	91	91
Period	1970-2001	1984-2001	1984-2001	1984-2001	1984-2001
R-squared (within)	0.09	0.07	0.07	0.06	0.07

Notes: Absolute *t*-values in parentheses. Robust standard errors.

\* Significant at the 0.1% level.

\*\* Significant at the 0.05% level.

\*\*\* Significant at the 0.01% level.



therefore reports results from fixed-effects estimation.

Fixed-effects estimation results are rather similar to the ones from random-effects estimation with two important exceptions: First, the interaction term between POLCON and the BIT variable is now insignificant, whereas the interaction term with governmental stability is significant and negative, suggesting that BITs and governmental stability function as substitutes. As before, the positive effect of BITs on FDI becomes smaller the more stable the governments are, but never to an extent that the effect would become negative. Second, the log of population size now switches signs and is statistically significant with a negative coefficient. Keeping in mind that the fixed-effects estimation is based on the within-variation of the data in each country only, whereas the random-effects estimation is based on both cross-country and within-variation, this can be interpreted to the effect that countries with larger populations receive more FDI conditional on the other explanatory variables, but as a country's population grows, it receives less rather than more FDI conditional on the other explanatory variables and the country-specific fixed effects.

Table 4 presents results for the logged country share of developing country FDI as the dependent variable. The reported results are based on fixed-effects estimation, since Hausman tests overwhelmingly rejected the random-effects assumption in all cases. Results are very similar to the ones reported above for the other dependent variable. In particular, a higher cumulative number of signed BITs is associated with a higher share of FDI inflows, so is institutional quality with the exception of POLCON. As before, there is some limited evidence that BITs and institutional quality are substitutes for each other, but the interaction term is only statistically significant with a negative coefficient sign for the composite ICRG index and its governmental stability sub-component.

## 6. SENSITIVITY ANALYSIS

Lagging the explanatory variables by one year mitigates potential simultaneity bias, but this lag length is somewhat arbitrary. The positive impact of the BIT variable on FDI inflows is maintained if the lag length is two, three, or four years instead.<sup>13</sup> Tobin and Rose-Acker-

man (2005) use five-year period averages to avoid the impact of year-to-year variation. Maintaining a lag of one year, but averaging the data over five-year periods does not dramatically change our results as the fixed-effects estimation results reported in Table 5 attest to, with the share of developing country FDI inflow as the dependent variable. With less variation in the data, we are not surprised to find that some variables lose statistical significance. Importantly, however, the BIT variable remains statistically significant with the expected positive sign throughout. The institutional variables and interaction terms also test almost as before in terms of sign and whether they are statistically significantly different from zero. The exception is the interaction between the BIT variable and governmental stability, which is only marginally insignificant, however.

In a further nonreported sensitivity analysis, we briefly explored the issue of whether BITs are all about a signaling effect. Maybe the only thing that matters is that a developing country has signed one BIT (perhaps with a major capital exporter) and signing any more BITs has no additional effect. When we added a dummy variable that is set to one in case a developing country has signed a BIT with any developed country, then this dummy variable was statistically significant with the expected positive sign. However, as before, the weighted cumulative sum of BITs remained positive and statistically significant as well with its magnitude only slightly reduced. This remains true if we replace the dummy variable with one for BITs signed with any of the six major capital exporters, namely, France, Germany, Japan, the Netherlands, the United Kingdom, and the United States. We interpret this as further evidence that BITs are likely to fulfil the dual function of both signaling and commitment.

Next, we checked whether our main results are due to the presence of problematic countries. In particular, we excluded all Eastern European and former Soviet Union countries from the sample since, with the exception of Hungary, these countries do not seem to be included in the analysis by Tobin and Rose-Ackerman (2005). However, results hardly change. We also excluded countries with a population size of less than one million from the sample to eliminate the influence of very small countries, but the results were hardly affected. We even restricted the list of countries to be exactly the same as in Tobin and Rose-Ackerman

Table 5. Five-year period averages fixed-effects estimation results (logged FDI flows as share of developing country FDI)

	I	II	III	IV	V
BITs	0.014 (2.15)**	0.048 (3.80)***	0.030 (2.91)***	0.042 (4.16)***	0.034 (3.68)***
ln GDP p.c.	3.036 (6.47)***	1.948 (2.33)**	1.792 (2.17)**	2.099 (2.39)**	1.957 (2.47)**
ln population	-2.601 (6.92)***	-2.766 (3.50)***	-2.702 (3.63)***	-2.849 (3.58)***	-2.944 (4.25)***
Economic growth	4.337 (2.14)**	3.488 (1.21)	3.300 (1.03)	3.564 (1.11)	4.014 (1.29)
Inflation	-0.0001 (1.95)*	-0.0001 (0.97)	-0.0001 (1.06)	-0.0001 (1.21)	-0.0001 (1.23)
Resource rents	0.029 (1.94)*	0.039 (1.55)	0.042 (1.69)*	0.045 (1.90)*	0.045 (1.84)*
Bilateral trade agreements	1.112 (2.26)**	0.482 (1.33)	0.336 (0.79)	0.634 (1.50)	0.530 (1.38)
WTO membership	0.242 (1.17)	-0.245 (0.82)	-0.231 (0.77)	-0.146 (0.49)	-0.099 (0.34)
POLCON	-0.066 (0.10)				
BITs * POLCON	0.008 (0.49)				
Composite political risk		0.020 (1.72)*			
BITs * composite political risk		-0.000 (1.79)*			
Investment profile			0.138 (1.64)*		
BITs * investment profile			-0.001 (0.37)		
Government stability				0.127 (1.71)*	
BITs * government stability				-0.002 (1.61)	
Law and order					0.341 (3.01)***
BITs * law and order					-0.002 (0.91)
Observations	637	317	314	314	314
Countries	120	91	91	91	91
Period	1970–2001	1984–2001	1984–2001	1984–2001	1984–2001
R-squared (within)	0.19	0.19	0.20	0.19	0.21

Notes: Absolute *t*-values in parentheses. Robust standard errors.

\* Significant at the 0.1% level.

\*\* Significant at the 0.05% level.

\*\*\* Significant at the 0.01% level.

(2005) and still found a positive effect of BITs on FDI throughout, with one exception (investment profile as measure of institutional quality), in which case the BIT variable is marginally insignificant with a positive coefficient sign. This holds true both in the annual and in the five-year period model specification.

Next, we wanted to test more formally whether results are driven by a few influential outliers. Belsley, Kuh, and Welsch (1980) suggest that observations that have both high residuals and a high leverage deserve special attention. We excluded an observation if its so-called DFITS is greater than twice the

square root of  $k/n$ , where  $k$  is the number of independent variables and  $n$ , the number of observations. DFITS is defined as the square root of  $h_i/(1 - h_i)$ , where  $h_i$  is an observation's leverage, multiplied by its studentized residual. Applying this criterion leads to the exclusion of up to 385 observations. Results are remarkably consistent, however.

In a further sensitivity analysis, we also included a measure of trade openness, which has a theoretically ambiguous effect on FDI (Taylor, 2000). On the one hand, countries that are more open to trade can be more attractive host countries if the main purpose of foreign investment is to export the goods or services produced. On the other hand, high trade barriers could make it in a company's best interest to locate production within the host country in order to circumvent the import barriers. Trade openness tested sometimes insignificant, sometimes (marginally) significant with a negative coefficient sign in the estimations, hardly affecting the results of the other variables. Since its inclusion would reduce the sample size by about 20 countries, we did not include this variable in the reported estimations. Following Noorbakhsh, Paloni, and Youssef (2001), we also included the secondary enrollment ratio to account for human capital as a determinant of FDI in nonreported analysis. The number of observations dropped substantially, leaving results for the other variables mainly unaffected. The enrollment ratio itself is never statistically significant, even though it is positively signed in line with expectations.

## 7. CONCLUSION

Developing countries that sign more BITs with developed countries receive more FDI inflows. The effect is robust to various sample sizes, model specifications, and whether or not FDI flows are normalized by the total flow of FDI going to developing countries. There is some limited evidence that BITs function as substitutes for institutional quality, as in a few estimations the interaction term between the accumulated number of BIT variable and institutional quality is negative and statistically significant. The message to developing countries therefore is that succumbing to the obligations of BITs does have the desired payoff of higher FDI inflows. To our knowledge, ours is the first study to provide robust empirical evidence that BITs fulfil their stated objective.

Those with particularly poor domestic institutional quality possibly stand most to gain from BITs, but there is no robust and consistent evidence for this.

Why do we come to different conclusions than the three other relevant studies? Hallward-Driemeier's (2003) study does not allow for a signaling effect and suffers from a small nonrepresentative sample due to the dyadic research design. Salacuse and Sullivan's (2005) analysis is cross-sectional and therefore cannot detect how a higher number of BITs raises the flow of FDI to signatory developing countries over time. The difference to the results presented by Tobin and Rose-Ackerman (2005) is more puzzling. As we noted in the sensitivity analysis, our results uphold if we adopt their five-year period-averages approach and restrict the list of countries to be exactly the same as in their analysis. It is therefore difficult to know where the difference comes from. One possibility is that we do not log the number of BITs, not least because the log of zero (BITs) is not defined. Whatever the cause, we find from Tobin and Rose-Ackerman's (2005) result, that each additional BIT *lowers* (rather than raises) the flow of FDI to developing countries with high political risk as extremely difficult to believe. BITs might not raise FDI flows in contexts of high risk, but there is no reason whatsoever to expect that they should lower FDI flows.

Statistical significance is not equivalent to substantive importance. We therefore need to know how strong is the effect of the BIT variable on FDI flows. How much more FDI can a developing country expect if it aggressively engages in a program to sign BITs with developed countries? To answer this question, we look at a one standard deviation increase in the BIT variable (equivalent to an increase of around 27 in the weighted cumulative BIT variable running from 0 to 99). Since in some regressions the interaction effect between the BIT variable and institutional quality is statistically significant, the overall effect of signing up to BITs sometimes depends on the level of institutional quality, in which case, for simplicity, we fix institutional quality at its median.<sup>14</sup> Based on the estimations in Table 3, a country experiencing a one standard deviation increase in the BIT variable, is predicted to increase its FDI inflow by between 43.7% and 93.2%. Based on the results from Table 4, such a country is predicted to increase its share of FDI inflow relative to the total inflow to developing countries by between 42.0% and 104.1%.

Clearly, these are nonnegligible increases following a substantial increase in BIT activity. But whether the demonstrated benefits of signing up to BITs in the form of increased FDI inflows are higher than the substantial costs developing countries incur in negotiating, signing, concluding, and complying with the

obligations typically contained in such treaties is impossible to tell. What we do know is that BITs fulfil their purpose, and those developing countries that have signed more BITs with major capital exporting developed countries are likely to have received more FDI in return.

## NOTES

1. For the purpose of this article, we presume that a higher FDI inflow is beneficial to the host nation. This presumption can of course be contested (De Soysa & Oneal, 1999).
2. Expropriations without prompt, adequate, and effective compensation also took place in many Communist countries after the Second World War.
3. When developed countries tried to extend these restrictions in the context of a multilateral agreement on investment (MAI) in the mid-1990s to banning pre-investment restrictions, performance requirements, and to extending the measures of expropriation requiring compensation to indirect and *de facto* (as opposed to direct) expropriation, most developing countries were rather happy when these negotiations imploded under the mounting critique of civil society and internal differences among developed countries (Neumayer, 2001). Many developed countries were also not too keen on granting liberalized access to investors from other developed countries the same way they normally expect developing countries to grant to investors from their own countries.
4. Depending on the BIT, this can refer to the country of the company's incorporation, seat, registered office, or principal place of business or the nationality of the individuals who have control over, or a substantial interest in, the investing company (Salacuse & Sullivan, 2005, p. 82).
5. A fourth study is provided by UNCTAD (1998). However, it is based on a purely cross-sectional stepwise (!) regression analysis with an unspecified number of observations from 1995. Not surprisingly, such "garbage can" modeling leads to inconclusive results.
6. Their study also suffers from the absence of year-specific time dummies controlling for aggregate annual changes in US FDI outflows, which could mean that the results are spurious.
7. If we were to take the share a developing country receives relative to the sum of global FDI instead, then results are practically identical.
8. In future research, we would like to analyze BITs in more detail. Not all BITs are the same, and one would like to know whether it is certain elements in BITs that matter for FDI location more than others.
9. This is unsurprising given the high correlation between the weighted and unweighted cumulative count of BITs, which follows from the fact that by and large minor capital exporting developed countries have signed few BITs, whereas the opposite is the case for major capital exporters.
10. Note that replacing logged population with the log of total GDP leads to an identical result, which follows from the fact that the two variables plus the log of GDP per capita are not independent of each other.
11. We do not include the Lomé Conventions or the follow-on Cotonou Agreement between the EU and 77 countries from Africa, the Caribbean, and the Pacific (ACP) since it is highly unlikely that these had a major impact on FDI.
12. Since the coefficient of the BIT variable represents the effect of BITs when the value of institutional quality is zero, one can re-scale the institutional quality variable such that zero represents the lowest level of risk. At the lowest observed level of risk in the sample, the positive effect of BITs is reduced from 0.030 (at the highest observed level of risk in the sample) to 0.011.
13. All results that are not explicitly reported are available on request.
14. Strictly speaking, the coefficient of the BIT variable always represents the effect of BITs at a zero value of the institutional quality measure, but if the interaction term is not statistically significantly different from zero, then, as a first approximation, it can be taken as the effect of BITs at any value of institutional quality.

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Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Romania, Russian Federation, Rwanda, São Tomé and Príncipe, Senegal, Seychelles, Sierra Leone, Slovak Republic, South Africa, Sri Lanka, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Swaziland, Syria, Tanzania, Thailand, Togo, Trinidad and Tobago, Tunisia, Turkey, Uganda, Ukraine, Uruguay, Uzbekistan, Venezuela, Vietnam, Yemen, Zambia, Zimbabwe.

#### APPENDIX A. LIST OF COUNTRIES INCLUDED IN SAMPLE

Albania, Algeria, Angola, Antigua and Barbuda, Argentina, Armenia, Azerbaijan, Bangladesh, Barbados, Belarus, Belize, Benin, Bolivia, Botswana, Brazil, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Cape Verde, Central African Republic, Chad, Chile, China, Colombia, Comoros, Congo (Dem. Rep.), Congo (Rep.), Costa Rica, Côte d'Ivoire, Croatia, Czech Republic, Dominica, Dominican Republic, Ecuador, Egypt, El Salvador, Equatorial Guinea, Estonia, Ethiopia, Fiji, Gabon, Gambia, Georgia, Ghana, Grenada, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hungary, India, Indonesia, Iran, Jamaica, Jordan, Kazakhstan, Kenya, Korea (Rep.), Kyrgyzstan, Latvia, Lebanon, Lesotho, Lithuania, Macedonia FYR, Madagascar, Malawi, Malaysia, Mali, Mauritania, Mauritius, Mexico, Moldova, Morocco, Mozambique, Namibia, Nepal, Nicaragua, Niger, Nigeria,

#### APPENDIX B. ICRG'S COMPOSITE POLITICAL RISK INDEX

Political risk components		
Sequence	Component	Max. points
A	Government stability	12
B	Socioeconomic conditions	12
C	Investment profile	12
D	Internal conflict	12
E	External conflict	12
F	Corruption	6
G	Military in politics	6
H	Religion in politics	6
I	Law and order	6
J	Ethnic tensions	6
K	Democratic accountability	6
L	Bureaucracy quality	4
Total		100

Source: [www.prsgroup.com](http://www.prsgroup.com).

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