Kiel

Working Papers

Do Trade and Investment
Agreements Lead to More FDI?
Accounting for Key Provisions
Inside the Black Box

by Axel Berger,
Matthias Busse,
Peter Nunnenkamp,
Martin Roy

Do Trade and Investment Agreements Lead to More FDI? Accounting for Key Provisions Inside the Black Box

Axel Berger, Matthias Busse, Peter Nunnenkamp, and Martin Roy

Abstract:
The previous literature provides a highly ambiguous picture on the impact of trade and investment agreements on FDI. Most empirical studies ignore the actual content of BITs and RTAs, treating them as "black boxes", despite the diversity of investment provisions constituting the essence of these agreements. We overcome this serious limitation by analyzing the impact of modalities on the admission of FDI and dispute settlement mechanisms in both RTAs and BITs on bilateral FDI flows between 1978 and 2004. We find that FDI reacts positively to RTAs only if they offer liberal admission rules. Dispute settlement provisions play a minor role. While RTAs without strong investment provisions may even discourage FDI, the reactions to BITs are less discriminate with foreign investors responding favourably to the mere existence of BITs.

Keywords: foreign direct investment, bilateral investment treaties, regional trade agreements, admission rules, investor-state dispute settlement.

JEL classification: F21; F23; K33

Axel Berger
German Development Institute,
D-53113 Bonn,
Germany
e-mail: axel.berger@die-gdi.de

Matthias Busse
Ruhr-University of Bochum,
D-48801 Bochum,
Germany
e-mail: matbusse@gmx.de

Peter Nunnenkamp
Kiel Institute for the World Economy
24100 Kiel,
Germany
e-mail: peter.nunnenkamp@ifw-kiel.de

Martin Roy
World Trade Organization
CH-1211 Geneva,
Switzerland
e-mail: martin.roy@wto.org

1.   Introduction

International investment treaties have proliferated in recent years. The number of bilateral investment treaties (BITs) is continuing to rise, despite having reached already impressive numbers. At the end of 2009, a total of 2,750 BITs had been concluded (UNCTAD 2010: 81). Another salient trend is the increase in numbers of regional trade agreements (RTAs): 474 RTAs had been notified to the World Trade Organization (WTO) as of July 2010.[1] What is less well known is that the proliferation of RTAs has taken place jointly with a trend towards a transformation of the content of RTAs. These have moved from focusing exclusively on issues related to trade in goods, to encompassing a wider set of areas such as trade in services, intellectual property, movement of business persons, and also investment. According to UNCTAD (2010: 81), 295 agreements with investment provisions – apart from BITs and double taxation agreements – had been signed at the end of 2009.

While an increasing number of studies investigated the impact of BITs and RTAs on foreign direct investment (FDI) flows, the empirical evidence has remained highly ambiguous.[2] This is not really surprising: most of the earlier studies treat BITs and RTAs as "black boxes." In particular, it is typically ignored that international trade and investment treaties differ in whether or not they contain important legal innovations that diffused over the last two decades. The first institutional variance concerns the degree to which international agreements allow for denationalized and depoliticized dispute settlement, i.e., whether foreign investors can sue host country governments before a transnational tribunal. The majority of earlier BITs, for example, does not allow for strong investor-state dispute settlement (ISDS) which has been included in most BITs and also in RTAs negotiated since the mid-1990s (Yackee 2007: 28). The second institutional variance relates to the way in which BITs and RTAs provide for liberalization commitments.[3] Many RTAs, starting with the North American Free Trade Agreement (NAFTA) in the mid-1990s, include investment provisions providing for pre-establishment national treatment (NT), thus restricting the ability of host governments to discriminate with respect to the admission of foreign investments. But such liberal NT provisions remain the exception in BITs.

In this paper, we overcome serious limitations of the previous literature by looking inside the "black box" of international trade and investment agreements. We focus on

---

[1] Please note that goods and services notifications are counted separately.

[2] For recent overviews of the relevant literature, see UNCTAD (2009) and Sauvant and Sachs (2009).

[3] By "liberalization commitments" we refer to the application of national treatment to the pre-establishment phase of FDI, to which we interchangeably refer to as the admission or market access phase. National treatment essentially involves non-discrimination between foreign and national investors/investments.

analyzing the impact of ISDS provisions as well as NT provisions for the pre-establishment phase on bilateral FDI flows between 1978 and 2004. In contrast to some recent studies surveyed in Section 2, we account for such provisions in both BITs and RTAs; we also account for the impact of NT provisions extended through pre-establishment most-favoured nation (MFN) clauses. At the same time, we cover a large sample of developing host countries as well as some newly emerging source countries of FDI to mitigate sample selection biases. We employ various estimation methods to check for the robustness of our results.

The paper is structured as follows. The next section discusses the relevance of major investment provisions, introduces the classification of international trade and investment treaties, and reviews the related literature. Section 3 presents the gravity-type model that is used as well as the data employed. Section 4 reports the main results, while Section 5 concludes.

2. Major Investment Provisions: Relevance and Related Literature

The central proposition guiding the analysis in this paper is that the extent to which international trade and investment agreements attract FDI from other parties depends on the inclusion and strength of key investment provisions in these agreements. In other words, we relax the unrealistic assumption underlying large parts of the previous literature that RTAs and BITs are homogenous. The type of obligations they contain differs, as does the depth of obligations that are relevant for regulating the establishment and operation of FDI projects.

Two investment provisions appear to be particularly relevant as they constitute important legal innovations relating to the liberalization and protection of FDI: (i) guarantees of market access for foreign investors, i.e., the extent to which international trade and investment agreements include provisions on NT and MFN treatment in the pre-establishment phase; and (ii) credible commitments by means of strong dispute settlement mechanisms against discriminatory and discretionary treatment once foreign investors have located in a host country. We discuss both aspects in reverse order.

BITs and RTAs are widely perceived to be commitment devices that help developing host countries to overcome a problem described by Vernon (1971) as the "obsolescing bargain". The need for credible legal protection against discriminatory and discretionary treatment results from the incentive of host country governments to modify the terms of investment in the post-establishment phase, in order to increase the host country's share in

2

FDI-related benefits. The sunk costs incurred by foreign investors would shift leverage to host country governments unless time inconsistency problems were overcome through binding enforcement mechanisms (Büthe and Milner 2008; 2009).

Accordingly, developing host countries could increase their credibility vis-à-vis foreign investors and attract more FDI by binding their hands through signing international treaties, thus "locking in" national reforms and increasing the costs of reneging on earlier unilateral commitments. Especially strict ISDS procedures would increase these costs by allowing foreign investors to bring claims against the host country for breaches of obligations directly to international arbitration and to seek monetary compensation for resulting damages (Wälde 2005; Allee and Peinhardt 2010).[4]

Dispute settlement provisions have been a cornerstone of BITs since the mid 1990s. Most recently negotiated BITs typically include ISDS provisions, even though there are still exceptions. So do many RTAs featuring investment disciplines. The NAFTA was the first RTA incorporating such disciplines previously reserved to BITs. Other RTAs have followed, especially trade agreements signed by Latin American countries (amongst themselves and with countries from other regions), and more recently also agreements involving Asian economies such as Japan or Singapore. By contrast, a number of RTAs do not include ISDS provisions. For example, this applies to agreements involving the European Union.[5]

Furthermore, the strictness and coverage of ISDS provisions varies considerably. The classification of BITs proposed by Yackee (2009) differentiates between three types of ISDS provisions. The strongest type offers comprehensive pre-consent concerning the investors' possibility to unilaterally initiate binding international arbitration of disputes. Partial pre-consent restricts this possibility to a limited class of disputes, for example on the amount of compensation for expropriation. A considerably weaker type offers just "promissory" ISDS, i.e., without any guarantee for the foreign investor of being able to bring a claim to international arbitration. As detailed in Section 3, we use Yackee's classification and extend it to RTAs.

Compared to the protection of FDI in the post-establishment phase, the liberalization of FDI by means of international trade and investment agreements is a more recent and less common phenomenon. This implies that host countries may have particularly favourable

---

[4] Note that the effectiveness of various post-establishment obligations (e.g., lawful expropriation, minimum standard of treatment, transfer of funds) depends to a great extent on strict and binding ISDS provisions.

[5] This situation may change with the implementation of the Lisbon Treaty that transfers the competency for FDI from the member states to the European Union Commission.

chances to distinguish themselves from competitors for FDI by providing better opportunities for foreign investors to actually enter the host market.

Indeed, NT is not limited to the post-establishment phase in a number of international agreements, but extends to the pre-establishment phase. This provides foreign investors with enforceable minimum guarantees of access to the market.[6] Such an obligation can imply liberalization through the removal of previously applied entry barriers, depending on the type of commitments undertaken.[7] It also ensures a level of predictability, security, and transparency of entry conditions. These elements should be valued by foreign investors planning long-term investments, by guaranteeing that they would be able to further access the market in the future. We therefore expect that the effect of RTAs and BITs on FDI flows between the parties depend on whether they provide for such long-term rights to enter the foreign market.

Most – but not all – RTAs with investment provisions contain obligations as regards market access. NAFTA, for example, provides for NT among contracting parties as regards the establishment and acquisition by foreign investors. For their part, BITs have traditionally focused on investment protection, rather than investment liberalization. This is why BITs typically do not guarantee access. However, BITs of certain important capital exporters contain access provisions. These are a standard feature of most BITs concluded by the United States. Canada's BITs also contain a NT provision extending to the pre-establishment phase, as do a handful of Japan's BITs, in particular some more recent ones (Adlung and Molinuevo 2008).

Importantly, RTAs and BITs differ not only as to whether they include any access obligations at all. At the same time, provisions on the establishment of FDI also differ in important ways across treaties. Naturally, these obligations do not apply unconditionally to all sectors. They are subject to negotiations and parties to such agreements often agree to maintain in place certain existing discriminatory (or non-conforming) measures, or they carve-out from the NT obligation certain sectors or policy areas. It is impossible to ascertain

---

[6] A number of agreements include not only a NT obligation, but also an obligation of "market access", modelled on Article XVI of the GATS. This article also regulates entry conditions by prohibiting certain types of restrictions, essentially quantitative restrictions that restrict competition, whether discriminatory or not (e.g., limits on the number of suppliers). Such an obligation is more relevant for services sectors, where monopolies or exclusive rights can be more prevalent. It overlaps with the NT obligation, which captures all quantitative restrictions that are discriminatory.

[7] See Roy et al. (2007) for examples.

with precision the level of access that is bound in each particular agreement.[8] However, agreements can be classified in terms of their liberalization modalities, i.e., the manner in which the NT obligation applies and, in particular, the way in which reservations for non-conforming measures can be maintained. Different modalities have different implications for transparency, predictability and security of admission rights. Consequently, their impact on FDI flows can be expected to vary.

The approach taken in some agreements provides for most predictability of access conditions by adopting a negative-list modality to liberalization. Accordingly, all sectors are considered to be fully consistent with NT in the pre-establishment phase, unless specifically provided for in annexes listing all the non-conforming measures maintained and other reservations. This approach is followed, for example, by NAFTA and many subsequent RTAs. Only a few of the BITs that cover pre-establishment NT adopt such an approach, namely the recent US-Uruguay, US-Rwanda, and Japan-Uzbekistan BITs. This approach has the merit of principally covering all sectors and providing clarity as to which non-conforming restrictions are maintained or can be introduced. It has two further advantages for investors. First, it tends to bind access at the actual level of openness, as the main presumption is that the reservations contained in the annex are for existing non-conforming measures.[9] Second, unilateral liberalization after the entry into force of the treaty is automatically bound at these lower levels of restrictiveness, meaning that going back to previously maintained restrictions is not possible.[10]

The second approach is similar to the one described above, with the exception that detailed lists of non-conforming measures are not provided. Nevertheless, the NT obligation applies in principle to all sectors for the pre-establishment phase, and non-conforming measures are bound at existing levels of restrictiveness, unless specified otherwise. Such an approach is followed in various Canadian BITs, as well as in most US BITs.

The third approach is less liberal as the NT obligation for pre-establishment solely applies to services sectors. It normally does so through a positive-list modality, meaning that, instead of applying fully to all sectors unless specified otherwise, the liberalization obligation

---

[8] This would necessitate an analysis of detailed commitments of each agreement, and, to our knowledge, this has only been done for commitments in services sectors for a number of RTAs; see, for example, Roy et al. (2007) and Marchetti and Roy (2008).

[9] A second annex is for "future non-conforming" measures, where parties indicate sectors or policy areas where they wish to reserve the right to maintain existing restrictions or introduce new ones. However, the presumption is that these are exceptions, and the first annex, on existing non-conforming measures, is more important.

[10] This is often referred to as the ratchet mechanism of negative-list agreements.

only applies to sectors specifically listed. For services sectors not listed, as well as for non-services sectors, there is no guarantee of access whatsoever, as any type of entry barrier can be imposed, at any level and at any time. For the services sectors listed, levels of access are bound; but, unlike the previous approaches mentioned, these do not necessarily reflect existing levels of access, nor is there a ratchet to ensure that future liberalization is guaranteed. The third approach mimics the approach used under the WTO's General Agreement on Trade in Services (GATS). It has been followed in a few RTAs, e.g., US-Jordan, ASEAN, and Mercosur.

As noted before, the empirical literature on the effects of international agreements on FDI flows to developing host countries has largely ignored the variety of provisions within the "black boxes" of BITs and RTAs (UNCTAD 2009; Sauvant and Sachs 2009). The few recent exceptions addressed particular aspects, while the present paper will integrate provisions on the liberalization of access and on ex-post protection included in both BITs and RTAs as well as extended through MFN clauses. For instance, ISDS provisions included in BITs have received some attention in recent studies. Yackee (2009) and Berger et al. (2010) find that stricter ISDS provisions do not necessarily result in higher FDI inflows. To the best of our knowledge, the impact of ISDS provisions contained in RTAs on FDI flows has not been the subject of thorough empirical analysis.

Some evidence exists that RTAs with investment provisions are associated with greater FDI inflows from outside the free trade area (UNCTAD 2009). This is largely because investors based in non-member countries locate export-platform FDI within the free trade area to take advantage of larger integrated markets and economies of scale. There has been less research on whether investment provisions in RTAs, and pre-establishment NT provisions in particular, lead to more FDI among member countries. The analyses of Adams et al. (2003) and Dee and Gali (2003) cover just nine RTAs with commitments on FDI liberalization.[11] Their findings suggest that so-called "new age" provisions in RTAs are associated with greater FDI flows among member countries, even though the evidence is ambiguous.[12]

---

[11] Adams et al. (2003) develop a liberalization index for non-merchandise trade provisions. While investment provisions are part of this index, it includes an array of non-investment issues, e.g., procurement, competition, movement of natural persons, and intellectual property.

[12] Adams et al. (2003: 97) find that NAFTA and the Australia-New Zealand RTA, which have deep investment provisions, have not stimulated FDI flows between signatory countries. Most investment effects involve non-members, which "may well reflect the influence of causal factors not controlled for in the analysis (...) rather than the effects of PTA formation/expansion *per se.*"

Lesher and Miroudot (2007) and Miroudot (2009) provide the most comprehensive analysis of investment provisions in RTAs we are aware of. These authors construct a composite index on the extensiveness of investment provisions. This index is shown to have a significantly positive effect on FDI flows. Lesher and Miroudot (2007) do not address endogeneity concerns, however. Furthermore, investment provisions included in BITs do not receive particular attention. However, unbalanced treatment of RTAs and BITs does not seem most appropriate. Arguably, it is the provisions to which contracting parties bind themselves what matters most, not the type of agreement in which they are embedded. Indeed, investment provisions in RTAs can sometimes be quite similar to those in BITs, and some BITs (e.g., those signed by the United States) actually have more extensive investment disciplines than the investment chapters in various RTAs.

We overcome these limitations in the subsequent analysis. In the next section, we present the gravity-type model used to assess the impact of investment liberalization modalities as well as dispute settlement provisions in BITs and RTAs on bilateral FDI flows, and we discuss methodological choices and the data employed.

3. Method and Data

We estimate a gravity-type model on the determinants of FDI. Such models have been used widely in the empirical literature on bilateral trade flows, and have been applied more recently to analyze bilateral FDI (Shatz 2003; Mutti and Grubert 2004; Portes and Rey 2005; Busse et al. 2010). The baseline specification of the model reads as follows:

$$\ln\left(\frac{FDI_{ijt}}{FDI_{it}}\right) = \alpha_0 + \gamma' X_{jt} + \alpha_1 (RTA/BIT\_with\_NT_{ijt}) + \alpha_2 (RTA/BIT\_w/o\_NT_{ijt}) + \lambda_t + \mu_{it} + \varepsilon_{ijt} \quad (1)$$

where FDI_{ijt} stands for bilateral FDI flows from country i to country j in period t, and FDI_{it} for total FDI flows from country i to all (developing) countries included in our sample.[13] X_{jt} represents a set of control variables (see below). $RTA/BIT\_with\_NT_{ijt}$ corresponds to a variable capturing the extent to which BITs and RTAs incorporate liberalizing modalities on NT for the admission of foreign investments. It ranges from 0 to 3, and reflects the coding discussed in the preceding section: 3 for agreements with negative-list modalities providing for a detailed list of non-conforming measures; 2 for agreements with negative-list modalities but without detailed lists of non-conforming measures; 1 for agreements that use a positive-

---

[13] Negative FDI flows (for three-year averages) are set equal to zero to include as many observations as possible.

list approach for investments in services sectors; and 0 for pairs of countries that are not bound by a NT obligation in a BIT or RTA that covers the admission phase.[14] $RTA/BIT\_w/o\_NT_{ijt}$ corresponds to a ratified RTA or BIT without NT provisions covering the admission of foreign investments; this dummy variable is set equal to one, if $RTA/BIT\_with\_NT_{ijt}$ takes the value of zero. We include a set of year dummies λ_t as well as source-year effects μ_{it} to achieve a consistent estimate of the impact of NT modalities on bilateral FDI; ε_{ijt} represents the error term.

As a number of previous studies, we use FDI flows as our dependent variable (Hallward-Driemeier 2003; Neumayer and Spess 2005; Tobin and Rose-Ackerman 2005; 2006; Büthe and Milner 2008; 2009; Busse et al. 2010). More precisely, we rely on bilateral flows available from the United Nations Conference on Trade and Development's (UNCTAD) Data Extract Service. The choice of bilateral FDI as the dependent variable is particularly appropriate in the present context. We analyze the impact of investment provisions that are legally binding only for the signatories of RTAs and BITs as regards each others' FDI projects, not with respect to third-party FDI. In other words, the liberalization of FDI through NT provisions and the protection of foreign investors through ISDS provisions do not apply to investors from all countries, but only to those from member countries.

The dataset covers the period from 1978 to 2004. Our definition of the dependent variable is the share of FDI attracted by a specific host country in total FDI flows from the source country under consideration to all developing host countries in our sample. This measure captures the attractiveness of a particular developing country relative to others. This is consistent with arguments to the effect that a motivation for developing countries to sign investment agreements is to divert FDI away from competing locations (Elkins et al. 2006).[15] We calculate three-year averages of FDI flows so as to smooth the year-to-year fluctuations in the data.

We use a fairly standard set of control variables. We include total real host country *GDP* and real GDP *Growth*, host country *Inflation*, host country *Openness* to trade, and the difference in GDP per capita between the source and the host country (*DiffGDPpc*). Moreover, we incorporate dummies for the existence of a double taxation treaty (*DTT*) and a

---

[14] This is for agreements that, for example, have a NT obligation that is limited to post-establishment, or a NT obligation covering pre-establishment but that is devoid of legal effect, e.g., by being subject to "domestic laws and regulations" or simply hortatory.

[15] Importantly, the results are robust to variations in our dependent variable. The results for our key variables, for example, do not change much if we use FDI flows or FDI as a share of GDP.

common currency (*ComCurr*), which serve to control for cases of deeper regional integration. We expect a positive association of *GDP, Growth, DiffGDPpc, RTA, DTT,* and *ComCurr* with FDI; the opposite applies to *Inflation* as our proxy for macroeconomic distortions. *PolCon* reflects political constraints on the executive branch and is included as a control variable as poor institutions may discourage FDI by giving rise to uncertainty. We use the index developed by Henisz (2000), which is available for a large number of years and countries. With higher values of *PolCon* meaning less policy discretion, we expect a positive link between *PolCon* and FDI flows.[16]

We take the natural logarithm of *FDI, GDP, DiffGDPpc,* and *Inflation* to reduce the skewness in the data. To keep the zero and negative observations, we use the following logarithmic transformation:

$$y = \ln\left(x + \sqrt{(x^2 + 1)}\right) \qquad (2)$$

This transformation leaves the sign of *x* unchanged, while the values of *x* pass from a linear scale at small absolute values to a logarithmic scale at large values.

To avoid the sample selection bias that has plagued large parts of the literature, we include the maximum number of 28 source and 83 (developing) host countries for which data on bilateral FDI flows are available, excluding financial offshore centres such as the Bahamas or Cayman Islands. As concerns the hosts of FDI, we follow most previous studies and consider developing countries only. This is consistent with the intent of BITs to promote FDI flows to developing countries. Moreover, RTAs with investment provisions are most often concluded between developed and developing countries. South-South agreements on investment are also increasing, in particular involving higher-income developing countries, while North-North RTAs with investment provisions tend to be the exception so far (e.g., US-Australia). Our sample includes a large number of poor developing host countries, which is crucial to avoid a sample selection bias. At the same time, our sample of 28 source countries of FDI includes several non-OECD economies, thereby capturing at least partly the recent emergence of FDI flows between developing countries.[17]

We employ different estimation techniques to check the robustness of our results. For a start, we estimate a simple ordinary least square (OLS) fixed-effects model. Subsequently,

---

[16] See Appendices A and B for definitions and sources as well as summary statistics.
[17] See Appendices C and D for the lists of source and host countries.

we estimate a fixed-effects Poisson Pseudo-Maximum Likelihood (PPML) model to account for the fact that the sample includes a large number of zero observations. Finally, we account for possible endogeneity of trade and investment treaties (and some control variables) by employing a dynamic Generalized Method of Moments (GMM) estimator. More specifically, we use the system GMM estimator proposed by Blundell and Bond (1998) and Arellano and Bover (1995).

4.   Results

OLS fixed-effects estimations

Table 1 presents the results with the OLS fixed-effects technique. The base-line estimation shown in column (1) ignores any provisions contained in RTAs and BITs, and enters only simple dummy variables for the existence of RTAs and BITs as is common practice in large parts of the previous literature. In line with the earlier findings of Busse et al. (2010), both dummies have a positive impact on bilateral FDI flows, at the one percent level of significance. The coefficients of most control variables are also significant with the expected sign. In particular, we find evidence for both horizontal (*GDP*) and vertical FDI (*DiffGDPpc*). Double taxation agreements (*DTT*) stimulate FDI flows, while macroeconomic instability (*Inflation*) and higher levels of political discretion (i.e., low values of *PolCon*) discourage FDI. Economic growth of the host country (*Growth*), the host country's openness to trade (*Openness*) as well as the existence of a common currency in the host and the source country (*ComCurr*) all have the expected positive sign, but fail to reach conventional significance levels. Note that the base-line results for the control variables are fairly robust across the specifications reported in Table 1. The only notable exceptions refer to columns (5) and (7) where *DiffGDPpc*, *Inflation*, and *DTT* prove to be insignificant at conventional levels. This can be attributed to the fact that the number of observations is cut almost by half once we account for ISDS provisions in BITs (see below for details).

We apply a step-wise approach of accounting for important treaty provisions in columns (2)-(7) of Table 1. In column (2), we focus on liberal admission rules in RTAs by differentiating between RTAs with and without NT provisions relating to the pre-establishment phase. As noted above, more liberal admission rights are captured by the variable *RTA_with_NT* taking values of 1, 2, or 3, with higher values indicating more liberal NT provisions; this variable is set equal to zero if the RTA in question does not contain such NT provisions, whereas the dummy variable *RTA_w/o_NT* is then set equal to one. The

results clearly reveal that the positive impact of RTAs on bilateral FDI flows is restricted to RTAs including liberal NT provisions. The coefficient of *RTA_w/o_NT* is even negative, though not significant at conventional levels.

In the next step, we account for the second key element of many RTAs with investment provisions, namely the strength of ISDS. The approach resembles that with regard to NT provisions: *RTA_with_ISDS* is set equal to zero if the RTA in question does not include ISDS provisions offering meaningful protection of foreign investors, while higher values of *RTA_with_ISDS* (in the range of 1 to 3) reflect stronger ISDS. We use Yackee's (2009) coding of ISDS provisions in BITs and extend it to RTAs: a value of 3 stands for comprehensive pre-consent to arbitration, a value of 2 for partial pre-consent (e.g., only for certain obligations), and a value of 1 for promissory consent to arbitration.[18]

According to column (3), taking account of ISDS provisions does not affect the previous result on NT provisions. In contrast to the positive effect of NT provisions, RTAs with stronger ISDS provisions are not associated with higher bilateral FDI flows. The coefficient of *RTA_with_ISDS* is completely insignificant. Taken together, these findings suggest that foreign investors respond more favourably to liberal admission rules in RTAs than to ex-post protection by way of investor-state arbitration.[19] Nevertheless, it proves to be important to account for ISDS provisions in RTAs, if only indirectly. The dummy variable for RTAs without both types of provisions (*RTA_w/o_NT/ISDS*) turns out to be significantly negative at the five percent level. This is quite plausible keeping in mind that RTAs liberalize trade in the first place. If they offer nothing specific to foreign investors in terms of FDI liberalization and protection, it becomes more likely that source-country exports replace FDI flows from the source country to host country parties of the RTA.

In the remaining columns of Table 1, we take a broader perspective by accounting for treaty provisions in both RTAs and BITs. The major result holds in column (4): once again treaties with liberal admission rules have a significantly positive impact on FDI flows, at the one percent level. However, the coefficient of *RTA/BIT_with_NT* is smaller than that of *RTA_with_NT* before. The weaker impact of NT provisions in column (4) is probably because strict NT provisions are still relatively rare in BITs, as compared to RTAs (see Section 2).

---

[18] RTAs (and also BITs) without pre-consent or no investor-state procedure altogether are coded as zero.
[19] We also tested for possible interaction effects between RTAs with more liberal NT provisions and RTAs with stronger ISDS provisions. One could have expected that RTAs combining both types of provisions have a greater impact on FDI flows than those that did not. In other words, the effect of liberal admission rules could have been reinforced by better ex-post protection, and vice versa. However, we did not find evidence supporting this hypothesis; results are not shown for the sake of brevity.

This is also reflected in the summary statistics in Appendix B where the mean of *RTA_with_NT* increases just slightly when combining RTAs and BITs in *RTA/BIT_with_NT*.

More strikingly, RTAs and BITs without NT provisions differ from each other in that the effect of the latter on FDI proves to be significantly positive. Technically speaking, the positive coefficient of *BIT_w/o_NT* follows logically from the significant BIT dummy in columns (1)-(3), in combination with the fact that just a few BITs include strict NT provisions. The economic inference appears to be that foreign investors tend to regard BITs as a broader set of similarly important investment provisions, rather than carefully checking the multitude of BITs for specific provisions. Note also that negotiations of BITs tend to be a technical procedure conducted on the basis of ready-made model texts. By contrast, the negotiation and ratification process of RTAs tend to be highly politicized and attract considerable public attention. Rule setting in RTAs covers a much wider area than in BITs, and foreign investors are aware that RTAs are mainly about trade liberalization.

As noted before, the significance and size of some control variables is affected in column (5) where the estimation is based on a much smaller sample. The limiting factor is that the coding of ISDS provisions by Yackee (2009) is available only for a reduced number of BITs and a shorter time period.[20] Yet two major findings carry over to the extended specification with NT as well as ISDS provisions in both RTAs and BITs: (i) more liberal admission rules clearly promote bilateral FDI flows; and (ii) FDI is replaced by exports if RTAs are limited to trade liberalization. Surprisingly perhaps, the effect of ISDS provisions continues to be insignificant when combining RTAs and BITs, as for RTAs in column (3) before, even though stricter ISDS provisions appear to be a by far more common feature of BITs compared to RTAs (Appendix B).[21] At the same time, the mere existence of a BIT continues to affect bilateral FDI flows positively, although the significance level deteriorates to ten percent in column (5). Taken together, these findings again invite the conclusion that foreign investors are rather indiscriminate in their reactions to BITs, in contrast to RTAs.

Before turning to alternative estimation methods we offer a further extension of our analysis – in columns (6) and (7) – by taking account of MFN obligations in RTAs and BITs that relate to the pre-establishment phase. MFN clauses, in principle, bind a party to extend to the other party any more favourable treatment granted to a non-party. Such clauses can help

---

[20] Yackee (2009) does not cover BITs concluded by several of our source countries; examples include: Chile, Ireland, Rep. of Korea, Mexico, New Zealand, Portugal, Thailand and Turkey. Furthermore, Yackee's coding is available only for BITs ratified up to 2002.
[21] See also Berger et al. (2010) for ambiguous effects of ISDS provisions in BITs.

extend bilateral preferences to a greater number of countries.[22] Hence, FDI flows between two countries that are not bound by bilateral NT provisions for admission may nevertheless be stimulated if these countries are bound by a MFN clause covering the admission phase.[23] In practice, however, countries do not typically include broad MFN clauses in investment and trade agreements, and therefore do not automatically extend to each other the preferences negotiated in agreements with third parties. A number of RTAs have no MFN provision at all, while a number of others exclude either prior or future agreements with non-parties. Most BITs, for their part, have MFN obligations that are limited to post-establishment. With these limits in mind, we take into account MFN provisions in BITs and RTAs, so as to capture instances where countries have granted to others better admission rights through MFN. The range and definition of *RTA/BIT/MFN_with_NT* resemble those of *RTA/BIT_with_NT* before.

In columns (6) and (7), we also include two additional variables to control for the host country's membership in the WTO (and previously the GATT) and the breadth of sectoral commitments in the host country's GATS schedule, which includes commitments on the establishment and operation of services firms from other WTO members. However, these additional controls are always insignificant and have no influence on the results for the other variables. Furthermore, the extension by MFN obligations found in RTAs and BITs hardly affects our major results and does not offer additional insights. The effect of NT provisions is slightly weaker in the full sample when comparing the results in columns (4) and (6), while still significant at the one percent level. Likewise, the effect of NT provisions weakens somewhat for the reduced sample with information on ISDS provisions in BITs, i.e., comparing the results in columns (5) and (6). Taken together, it appears that indirect effects working through MFN obligations play no significant role in stimulating bilateral FDI flows.

Alternative estimation methods

In order to check whether the previous OLS results are biased, we employ two alternative estimation methods in the following: (i) a fixed-effects Poisson Pseudo Maximum Likelihood (PPML) model accounting for the fact that the sample includes a large number of zero

---

[22] As is well known, the inclusion of MFN clauses in trade agreements helped foster freer trade in Europe from the mid-19 century to World War I.

[23] For example, Bangladesh and Japan may have ratified a BIT with each other that provides for admission rights. Bangladesh may also have signed an agreement with a third country, say Mexico, where it did not provide for NT as regards admission, but has committed to grant Mexico MFN as regards admission of foreign investments. In other words, by granting a certain level of treatment for admission to Japanese investors, Bangladesh is bound to extend the same treatment to Mexican investors by virtue of the MFN clause in the Mexico-Bangladesh agreement.

observations of bilateral FDI flows; and (ii) a dynamic GMM estimator accounting for possible endogeneity (see below). The PPML estimator has been suggested for gravity models on trade by Silva and Tenreyro (2006). Unlike the OLS method, the PPML estimator is consistent even in the presence of heteroskedasticity; it does not ignore zero observations. We use fixed effects and the same model specifications as before in columns (1)-(7) of Table 1.

The results of the PPML estimations are reported in Table 2. The impact of several control variables is essentially as before, even though the size of coefficients is affected by the choice of the estimation method. For instance, the coefficients of *GDP*, *DiffGDPpc* and *PolCon* all increase considerably in size. In contrast to Table 1, *Growth* now enters highly significant and positive in all PPML specifications. On the other hand, *Inflation* no longer discourages bilateral FDI in a significant way. The positive impact of *DTT* also turns out to be insignificant in Table 2, which is partly due to the high correlation between DTTs and BITs.

As for our variables of major interest, the PPML results are very similar to the OLS results. One major exception refers to the base-line specification in column (1): while the BIT dummy enters strongly significant and positive as before, the RTA dummy completely loses its impact on bilateral FDI flows. By contrast, the significance and the size of the coefficients of *RTA_with_NT* in columns (2) and (3) are almost the same as in the corresponding OLS estimations. This strongly supports the earlier conclusion that foreign investors react to RTAs by expanding FDI only if the agreements offer more liberal admission rules. The coefficient of *RTA_with_ISDS* turns out to be negative and weakly significant, at the ten percent level, in column (3). Even though Lesher and Miroudot (2007) also find that stronger ex-post protection of foreign investors discourages FDI, this result is not particularly plausible. Indeed, as we show further below, the impact of ISDS provisions in RTAs heavily depends on the method of estimation. In particular, endogeneity concerns appear to loom large in this respect.

OLS and PPML results closely resemble each other when combining the provisions included in RTAs and BITs in order to assess the reaction of FDI flows to more liberal admission rules and stronger dispute settlement mechanisms. The coefficients of *RTA/BIT_with_NT* in columns (4) and (5) are highly significant and positive as before. The size of the coefficient of *RTA/BIT_with_NT* increases modestly when comparing columns (5) in Tables 1 and 2 for the reduced sample with full information on ISDS provisions in RTAs

and BITs; the combined ISDS provisions again have no say on FDI flows. NT provisions also remain the major driving force of FDI when figuring in related MFN clauses in RTAs and BITs (*RTA/BIT/MFN_with_NT* in columns 6 and 7).

Finally the PPML estimations underscore the striking difference between RTAs and BITs concerning their impact on FDI when neither NT nor ISDS provisions, as defined here, are included in these agreements. BITs stimulate bilateral FDI flows even when liberalization, as reflected in NT provisions, is not particularly far-reaching and protection, as reflected in ISDS provisions, is not particularly strong. By contrast, RTAs without these investment-related elements appear to encourage exports at the expense of FDI.

However, some of these findings weaken when employing GMM estimations that address endogeneity concerns. In particular the conclusion of BITs and the inclusion of investment-related provisions in RTAs may be the result of foreign investors pressing for liberalization and protection of already existing as well as planned engagements in developing host countries. The GMM estimations also account for similar endogeneity concerns, though less relevant in the present context, that relate to several control variables, including *Growth*, *Openness*, and *DTT*. We use lagged levels as well as lagged differences as instruments. The large number of country pairs ensures that the number of used instruments is always considerably below the number of observations. It should also be noted that all specifications reported in Table 3 pass the Sargan-Hansen-J test for overidentifying restrictions so that the instrument set is valid.

The dynamic GMM results reveal that bilateral FDI flows are strongly path dependent. The coefficients of the lagged dependent variable are highly significant, ranging from 0.717 in column (7) of Table 3 to 0.794 in column (2). Unsurprisingly the inclusion of the lagged dependent variable takes away explanatory power from some other control variables. Most notably the evidence for vertical FDI completely vanishes, with *DiffGDPpc* typically being insignificant in Table 3 and even significantly negative for the two estimations based on the reduced sample. Likewise, *PolCon* loses its explanatory power. On the other hand, *DTT* regains its explanatory power that was lost in the intermediate step of employing PPML estimations.

Similar to several control variables, our variables of major interest often have a weaker impact on bilateral FDI flows in the GMM estimations, as compared to the OLS estimations. For instance, the coefficient of the BIT dummy shrinks considerably. Importantly, however, it continues to pass conventional significance levels. In other words,

the BIT effect on FDI tends to be overstated when ignoring the potential endogeneity of BITs – but it remains valid. Essentially the same applies to RTAs offering more liberal admission rules (*RTA_with_NT* in columns 2 and 3), the combination of NT provisions in RTAs and BITs (*RTA/BIT_with_NT* in columns 4 and 5), and when figuring in MFN clauses (*RTA/BIT/MFN_with_NT* in columns 6 and 7).

A striking difference between the GMM estimations and the previous OLS estimations concerns ISDS provisions in RTAs. The highly significant coefficient of *RTA_with ISDS* in column (3) of Table 3 suggests that their effect on FDI flows is biased *downwards* unless possible endogeneity is accounted for. Such a bias may occur if source country parties to RTAs pressed for stricter ISDS provisions mainly when bargaining with relatively weak host country parties where foreign investors had hardly located so far. Possibly, these host country parties agreed to stricter ISDS provisions precisely because the prospect of contentious FDI-related disputes and the obligation to adhere to the rulings of independent arbitration panels appeared to be rather remote. However, the same reasoning should then apply to ISDS provisions in BITs. All the same, the impact on FDI is insignificant – as before in the OLS and PPML estimations – when combining ISDS provisions in RTAs with those in BITs (columns 5 and 7). It is hard to decide whether ISDS provisions in BITs are less effective than those in RTAs when accounting for possible endogeneity, or whether the difference is mainly due to the reduced sample for which ISDS provisions are available in BITs.

In another respect, the differences between RTAs and BITs narrow considerably when performing GMM estimations. Both types of agreements have at best weak effects on bilateral FDI flows in Table 3 when NT and ISDS provisions are missing. As concerns RTAs, the coefficient of *RTA_w/o_NT/ISDS* continues to be negative, but we no longer find substitution effects to be significant at conventional levels. As concerns BITs, they remain effective – though only at the ten percent level – in stimulating FDI as long as only NT provisions are missing, as indicated by the coefficients of *BIT_w/o_NT* in columns (4) and (6). In contrast to the OLS and PPML estimations, however, the coefficients of *BIT_w/o_NT/ISDS* prove to be insignificant in columns (5) and (7).

5.   **Summary and Conclusion**

The central proposition guiding the analysis in this paper is that the extent to which international trade and investment agreements attract FDI from other parties depends on the

16

inclusion and strength of key investment provisions in these agreements. Large parts of the previous literature have ignored the actual content of BITs and RTAs, treating them as "black boxes", despite the diversity of investment provisions constituting the essence of these agreements.

We focus on two investment provisions which constitute important legal innovations relating to the liberalization and protection of FDI: (i) guarantees of market access for foreign investors by means of NT and MFN treatment in the pre-establishment phase; and (ii) credible commitments against discriminatory and discretionary treatment by means of ISDS mechanisms in the post-establishment phase. We account for the inclusion and strength of these provisions in both RTAs and BITs. Their impact on bilateral FDI flows is assessed for a large sample of developing host countries, covering the period 1978-2004. We employ several estimation methods, including dynamic system GMM estimations to address endogeneity concerns.

We find strong evidence that liberal admission rules promote bilateral FDI. The existence and coverage of NT provisions in the pre-establishment phase enters our estimations highly significant and positive, independent of the method employed. By contrast, ISDS mechanisms appear to play a minor role. It should be stressed, however, that the impact of ISDS provisions in RTAs tends to be understated unless endogeneity is accounted for in GMM estimations. This surprising finding may indicate that minor host countries were harder pressed to agree to stronger ISDS provisions.

Also in contrast to what one might expect, the impact of similar investment provisions on bilateral FDI depends on whether these provisions are contained in RTAs or BITs. RTAs offering nothing specific to foreign investors, in terms of liberal admission or effective dispute settlement, leave bilateral FDI unaffected or even induce a substitution of source-country exports for FDI. By comparison, foreign investors respond to BITs rather indiscriminately. Future research may help clarify the reasons for this striking difference. The difference could be a short-term phenomenon, narrowing over time to the extent that NT provisions in the pre-establishment phase become more common in BITs, too. However, it might also be attributed to the low profile and rather technical nature of BIT negotiations, based on ready-made model texts, that investors are less aware of the variety of investment provisions – in contrast to RTA negotiations that are often more politicized and controversial.

References

Adams, R., P. Dee, J. Gali and G. McGuire (2003). The Trade and Investment Effects of Preferential Trading Arrangements – Old and New Evidence. Productivity Commission Staff Working Paper. Canberra.

Adlung, R. and M. Molinuevo (2008). Bilateralism in Services Trade: Is there Fire behind the (BIT-)Smoke? *Journal of International Economic Law* 11(2): 365-409.

Allee, T. and C. Peinhardt (2010). Delegating Differences: Bilateral Investment Treaties and Bargaining Over Dispute Resolution Provisions. *International Studies Quarterly* 54 (1): 1-26.

Arellano, M. and O. Bover (1995). Another Look at the Instrumental Variable Estimation of Error Component Models. *Journal of Econometrics* 68 (1): 29-51.

Berger, A., M. Busse, P. Nunnenkamp and M. Roy (2010). More Stringent BITs, Less Ambiguous Effects on FDI? Not a Bit! Kiel Institute for the World Economy. Working Paper 1621.

Blundell, R. and S. Bond (1998). Initial Conditions and Moment Restrictions in Dynamic Panel Data Models. *Journal of Econometrics* 87 (1): 115-143.

Busse, M., J. Königer and P. Nunnenkamp (2010). FDI Promotion through Bilateral Investment Treaties: More Than a Bit? *Review of World Economics* 146 (1): 147-177.

Büthe, T. and H.V. Milner (2008). The Politics of Foreign Direct Investment into Developing Countries: Increasing FDI through International Trade Agreements? *American Journal of Political Science* 52(4): 741-762.

Büthe, T. and H.V. Milner (2009). Bilateral Investment Treaties and Foreign Direct Investment: A Political Analysis. In: K.P. Sauvant and L.E. Sachs (eds.). *The Effect of Treaties on Foreign Direct Investment: Bilateral Investment Treaties, Double Taxation Treaties, and Investment Flows*. Oxford (Oxford University Press): 171-224.

Dee, P. and J. Gali (2003). The Trade and Investment Effects of Preferential Trading Arrangements. National Bureau of Economic Research. Working Paper 10160. Cambridge, Mass.

Elkins, Z., A.T. Guzman and B.A. Simmons (2006). Competing for Capital: The Diffusion of Bilateral Investment Treaties, 1960-2000. *International Organization* 60 (Fall): 811-846.

Hallward-Driemeier, M. (2003). Do Bilateral Investment Treaties Attract Foreign Direct Investment? Only a Bit…and They Could Bite. World Bank Policy Research Working Paper 3121. Washington, DC.

Henisz, W. (2000). The Institutional Environment for Multinational Investment. *Journal of Law, Economics and Organization* 16 (2): 334-364.

Lesher, M. and S. Miroudot (2007). The Economic Impact of Investment Provisions in Regional Trade Agreements. *Aussenwirtschaft* 62 (2): 193-232.

Marchetti, J. and M. Roy (2008). Services Liberalization in the WTO and in PTAs. In: J. Marchetti and M. Roy (eds.). *Opening Markets for Trade in Services: Countries and Sectors in Bilateral and WTO Negotiations*. Cambridge (Cambridge University Press and WTO): 61-112.

Miroudot, S. (2009). Economic Impact of Investment Provisions in Asian RTAs. In: J. Chaisse and P. Gugler (eds.). *Expansion of Trade and FDI in Asia*. London (Routledge): 186-211.

Mutti, J. and H. Grubert (2004). Empirical Asymmetries in Foreign Direct Investment and Taxation. *Journal of International Economics* 62 (2): 337-358.

Neumayer, E. and L. Spess (2005). Do Bilateral Investment Treaties Increase Foreign Direct Investment to Developing Countries? *World Development* 33 (10): 1567-1585.

Portes, R. and H. Rey (2005). The Determinants of Cross-Border Equity Flows. *Journal of International Economics* 65 (2): 269-296.

Reinhart, C.M. and K.S. Rogoff (2004). The Modern History of Exchange Rate Arrangements: A Reinterpretation. *Quarterly Journal of Economics* 119 (1): 1-48.

Roy, M., J. Marchetti and H. Lim (2007). Services Liberalization in the New Generation of Preferential Trade Agreements: How Much Further than the GATS? *World Trade Review* 6 (2): 155-192.

Sauvant, K.P. and L.E. Sachs (eds.) (2009). *The Effect of Treaties on Foreign Direct Investment: Bilateral Investment Treaties, Double Taxation Treaties, and Investment Flows*. Oxford (Oxford University Press).

Shatz, H.J. (2003). Gravity, Education, and Economic Development in a Multinational Affiliate Location. *Journal of International Trade and Economic Development* 12 (2): 117-150.

Silva, S. and S. Tenreyro (2006). The Log of Gravity. *Review of Economics and Statistics* 88 (4): 641–658.

Tobin, J. and S. Rose-Ackerman (2005). Foreign Direct Investment and the Business Environment in Developing Countries: The Impact of Bilateral Investment Treaties. Yale Center for Law, Economics, and Public Policy. Working Paper. New Haven, Conn.

Tobin, J. and S. Rose-Ackerman (2006). When BITs Have Some Bite: The Political-Economic Environment for Bilateral Investment Treaties. http://www.law.yale.edu/documents/pdf/When_BITs_Have_Some_Bite.doc .

UNCTAD (2009). *The Role of International Investment Agreements in Attracting Foreign Direct Investment to Developing Countries*. UNCTAD Series on International Investment Policies for Development. New York and Geneva (United Nations).

UNCTAD (2010). *World Investment Report 2010. Investing in a Low-carbon Economy*. New York and Geneva (United Nations).

Vernon, R. (1971). *Sovereignty at Bay: The Multinational Spread of U.S. Enterprises*. New York (Basic Books).

Wälde, T. (2005). The "Umbrella" Clause in Investment Arbitration: A Comment on Original Intentions and Recent Cases. *Journal of World Investment and Trade* 6 (2): 183-236.

Yackee, J. (2007). Conceptual Difficulties in the Empirical Study of Bilateral Investment Treaties. University of Wisconsin Law School. Legal Studies Research Paper 1053.

Yackee, J. (2009). Do BITs Really Work? Revisiting the Empirical Link between Investment Treaties and Foreign Direct Investment. In: K.P. Sauvant and L.E. Sachs (eds.). *The Effect of Treaties on Foreign Direct Investment: Bilateral Investment Treaties, Double Taxation Treaties, and Investment Flows*. Oxford (Oxford University Press): 379-394.

TABLE 1 - OLS fixed-effects estimation results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ln (GDP)	0.193***	0.233***	0.232***	0.225***	0.236***	0.216***	0.223***
	(5.466)	(6.612)	(6.625)	(6.388)	(4.078)	(6.173)	(3.865)
ln (DiffGDPpc)	0.0082***	0.0092***	0.0091***	0.0091***	0.105	0.0091***	0.111
	(3.540)	(3.969)	(3.897)	(3.897)	(0.776)	(3.900)	(0.814)
Growth	0.00113	0.000423	0.000441	0.000623	0.00107	0.000948	0.00157
	(1.207)	(0.458)	(0.482)	(0.674)	(0.790)	(1.057)	(1.202)
ln (Inflation)	-0.00714*	-0.0082**	-0.0081**	-0.0078**	-0.00385	-0.00698*	-0.00272
	(-1.930)	(-2.224)	(-2.211)	(-2.111)	(-0.800)	(-1.897)	(-0.572)
Openness	0.000240	7.40e-05	5.77e-05	0.000126	0.000129	0.000106	0.000116
	(0.740)	(0.226)	(0.179)	(0.387)	(0.294)	(0.332)	(0.270)
PolCon	0.110***	0.0911***	0.0907***	0.0950***	0.0965**	0.101***	0.107**
	(3.183)	(2.629)	(2.621)	(2.732)	(2.056)	(2.890)	(2.254)
DTT	0.104**	0.0948**	0.0943**	0.101**	0.0643	0.0993**	0.0552
	(2.224)	(2.018)	(2.014)	(2.147)	(1.248)	(2.093)	(1.063)
ComCurr	0.112	0.0367	0.0366	0.0438	0.0753	0.0548	0.0777
	(1.466)	(0.476)	(0.475)	(0.567)	(0.934)	(0.712)	(0.965)
BIT	0.106***	0.101***	0.104***				
	(3.388)	(3.234)	(3.362)				
RTA	0.180***						
	(2.684)						
RTA_with_NT		0.183***	0.181***				
		(5.593)	(5.539)				
RTA_with_ISDS			0.0215				
			(0.248)				
RTA/BIT_with_NT				0.135***	0.144***		
				(5.523)	(5.664)		
RTA/BIT_with_ISDS					0.00432		0.00639
					(0.368)		(0.542)
RTA/BIT/MFN_with_NT						0.112***	0.119***
						(4.911)	(5.199)
RTA_w/o_NT		-0.113		-0.119		-0.127	
		(-1.238)		(-1.309)		(-1.381)	
RTA_w/o_NT/ISDS			-0.175**		-0.291***		-0.309***
			(-2.010)		(-3.242)		(-3.397)
BIT_w/o_NT				0.118***		0.115***	
				(3.687)		(3.562)	
BIT_w/o_NT/ISDS					0.175*		0.175*
					(1.911)		(1.934)
WTO						-0.0215	-0.0153
						(-1.124)	(-0.579)
GATS						0.000427	0.000634
						(1.431)	(1.397)
Observations	14,077	14,077	14,077	14,077	7,510	14,077	7,510
R-squared	0.021	0.027	0.028	0.025	0.024	0.024	0.023
Number of pairs	2,313	2,313	2,313	2,313	1,161	2,313	1,161

Notes: t-values in parentheses are corrected for heteroskedasticity; coefficients for the year dummies are not shown; likewise, source-year effects always included but not displayed; ***, ** and * denote significance at the one, five, and ten percent level, respectively.

TABLE 2 – PPML fixed-effects estimation results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ln (GDP)	0.461***	0.555***	0.570***	0.543***	0.597***	0.541***	0.597***
	(3.912)	(4.617)	(4.714)	(4.509)	(3.299)	(4.473)	(3.282)
ln (DiffGDPpc)	0.0763***	0.0781***	0.0785***	0.0770***	0.320	0.0764***	0.289
	(4.518)	(4.627)	(4.702)	(4.570)	(0.742)	(4.537)	(0.668)
Growth	0.0257***	0.0219***	0.0207***	0.0226***	0.0173***	0.0208***	0.0162**
	(4.590)	(3.843)	(3.624)	(3.976)	(2.654)	(3.591)	(2.415)
ln (Inflation)	-0.0114	-0.0137	-0.0134	-0.0126	-0.00257	-0.0159	-0.00507
	(-0.750)	(-0.902)	(-0.882)	(-0.831)	(-0.142)	(-1.038)	(-0.276)
Openness	-0.000692	-0.00167	-0.00161	-0.00147	-5.32e-05	-0.000674	0.000451
	(-0.498)	(-1.189)	(-1.144)	(-1.050)	(-0.0308)	(-0.458)	(0.247)
PolCon	0.390**	0.341**	0.328**	0.355**	0.369**	0.362**	0.385**
	(2.517)	(2.192)	(2.102)	(2.284)	(1.972)	(2.332)	(2.051)
DTT	0.0491	0.0366	0.0509	0.0418	0.0989	0.0449	0.105
	(0.628)	(0.470)	(0.652)	(0.538)	(1.054)	(0.579)	(1.109)
Com Curr	0.172	0.136	0.127	0.103	0.106	0.113	0.110
	(0.924)	(0.725)	(0.681)	(0.547)	(0.557)	(0.593)	(0.576)
BIT	0.181***	0.185***	0.180**				
	(2.587)	(2.634)	(2.555)				
RTA	0.0797						
	(0.970)						
RTA_with_NT		0.171***	0.191***				
		(3.802)	(4.112)				
RTA_with_ISDS			-0.0899*				
			(-1.858)				
RTA/BIT_with_NT				0.141***	0.169***		
				(3.394)	(3.551)		
RTA/BIT_with_ISDS					0.0347		0.0351
					(1.090)		(1.103)
RTA/BIT/MFN_with_NT						0.144***	0.177***
						(3.407)	(3.512)
RTA_w/o_NT		-0.144		-0.151		-0.131	
		(-1.224)		(-1.286)		(-1.098)	
RTA_w/o_NT/ISDS			-0.208		-0.493***		-0.470**
			(-1.540)		(-2.719)		(-2.555)
BIT_w/o_NT				0.202***		0.207***	
				(2.851)		(2.924)	
BIT_w/o_NT/ISDS					1.008*		1.010*
					(1.721)		(1.726)
WTO						0.160	0.0874
						(1.569)	(0.713)
GATS						-0.00175	-0.00118
						(-1.331)	(-0.722)
Observations	14,077	14,077	14,077	14,077	7,510	14,077	7,510
Number of pairs	2,313	2,313	2,313	2,313	1,161	2,313	1,161

Notes: ***, ** and * denote significance at the one, five, and ten percent level, respectively; see Table 1 for further notes.

TABLE 3 – System GMM estimation results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ln (FDI$_{t-1}$)	0.757***	0.794***	0.762***	0.788***	0.709***	0.786***	0.717***
	(23.32)	(23.72)	(21.97)	(24.21)	(19.86)	(24.31)	(20.07)
ln (GDP)	0.0433***	0.0373***	0.0422***	0.0363***	0.0548***	0.0366***	0.0498***
	(4.351)	(3.804)	(4.287)	(3.829)	(3.866)	(3.976)	(3.521)
ln (DiffGDPpc)	0.00429	0.00152	0.00259	0.00130	-0.175**	0.00105	-0.204**
	(1.630)	(0.613)	(1.005)	(0.542)	(-2.305)	(0.413)	(-2.504)
Growth	0.0031***	0.00255**	0.00263**	0.00262**	0.00190	0.00246**	0.00170
	(2.858)	(2.245)	(2.368)	(2.334)	(1.493)	(2.202)	(1.315)
ln (Inflation)	0.00361	0.00156	0.000765	0.00199	0.00175	0.00105	0.000930
	(0.791)	(0.348)	(0.175)	(0.448)	(0.337)	(0.236)	(0.179)
Openness	-7.96e-06	-3.09e-05	-1.31e-05	-1.38e-05	0.000387	3.32e-05	0.000446*
	(-0.0375)	(-0.143)	(-0.0603)	(-0.0651)	(1.483)	(0.154)	(1.711)
PolCon	-0.0280	-0.0356	-0.0326	-0.0286	0.0351	-0.00868	0.0554
	(-0.670)	(-0.844)	(-0.771)	(-0.680)	(0.678)	(-0.204)	(1.082)
DTT	0.130***	0.110***	0.111***	0.122***	0.142***	0.123***	0.149***
	(3.593)	(3.111)	(3.111)	(3.396)	(3.951)	(3.453)	(4.139)
ComCurr	-0.00856	-0.0240	-0.0209	-0.0155	0.00893	-0.00570	0.0184
	(-0.219)	(-0.639)	(-0.546)	(-0.412)	(0.214)	(-0.152)	(0.441)
BIT	0.0583**	0.0442*	0.0582**				
	(2.076)	(1.698)	(2.230)				
RTA	0.0971*						
	(1.853)						
RTA_with_NT		0.0544***	0.0528***				
		(3.281)	(3.076)				
RTA_with_ISDS			0.118***				
			(2.773)				
RTA/BIT_with_NT				0.0457***	0.0412***		
				(3.297)	(2.597)		
RTA/BIT_with_ISDS					0.00133		0.00347
					(0.134)		(0.347)
RTA/BIT/MFN_with_NT						0.0386***	0.0319**
						(2.811)	(2.085)
RTA_w/o_NT		0.0309		0.0258		0.0284	
		(0.432)		(0.361)		(0.392)	
RTA_w/o_NT/ISDS			-0.0311		-0.104		-0.0977
			(-0.470)		(-1.615)		(-1.462)
BIT_w/o_NT				0.0477*		0.0511*	
				(1.823)		(1.923)	
BIT_w/o_NT/ISDS					0.0345		0.0251
					(0.421)		(0.303)
WTO						-0.0134	0.00575
						(-1.154)	(0.314)
GATS						-0.000168	-0.000351
						(-0.681)	(-0.869)
Observations	12,088	12,088	12,088	12,088	6,543	12,088	6,543
Number of pairs	2,301	2,301	2,301	2,301	1,159	2,301	1,159

Notes: ***, ** and * denote significance at the one, five, and ten percent level, respectively. We use all lags available, that is, lagged levels and lagged differences. Due to the large number of country pairs, the number of instruments used is always considerably lower than the number of observations. All specifications pass the Sargan-Hansen-J statistic test for overidentifying restrictions, demonstrating that the instrument set can be considered valid. Appropriate Arrellano-Bond-tests indicate that first-order (second-order) autocorrelation is present (absent) in all regressions. See Table 1 for further notes.

Appendix A: Definition of variables and data sources

Variable	Definition	Source
FDI	Bilateral FDI flows from source to host country in percent of total FDI to all developing countries included in our sample, including zeros	UNCTAD; http://www.unctad.org/Templates/StartPage.asp?intItemID=2921&lang=1
GDP	Real GDP of the host country, constant 2000 US$	World Bank, World Development Indicators
DiffGDPpc	Difference between source and host countries' GDP per capita, constant 2000 US$	World Bank, World Development Indicators
Growth	Real GDP growth rate of host country in percent	World Bank, World Development Indicators
Inflation	Inflation rate of the host country in percent (GDP deflator)	World Bank, World Development Indicators
Openness	Sum of imports and exports of the host country in percent of GDP	World Bank, World Development Indicators
PolCon	Political constraints III, Henisz database, range from 0 to 1	Henisz (2000)
DTT	Dummy variable, set equal to one in the case of a double taxation treaty ratified between source and host country	IBFD, Tax Treaty Database; http://www.ibfd.org
ComCurr	Dummy variable, set equal to one in the case of a common currency between source and host country	Reinhart and Rogoff (2004)
BIT	Dummy variable, set equal to one in the case of a bilateral investment treaty ratified between source and host country	UNCTAD; http://www.unctadxi.org/templates/DocSearch____779.aspx
RTA	Dummy variable, set equal to one in the case of a regional trade agreement with source and host country as members	WTO; http://www.wto.org/english/tratop_e/region_e/region_e.htm
RTA_with_NT	Range from 1 to 3 for RTAs including NT provisions as defined in the main text; otherwise = 0	WTO; http://rtais.wto.org/UI/PublicMaintainRTAHome.aspx
RTA_with_ISDS	Range from 1 to 3 for RTAs including ISDS provisions as defined in the main text; otherwise = 0	WTO; http://rtais.wto.org/UI/PublicMaintainRTAHome.aspx
RTA/BIT_with_NT	Range from 1 to 3 for RTAs and/or BITs including NT provisions as defined in the main text; otherwise = 0	WTO; http://rtais.wto.org/UI/PublicMaintainRTAHome.aspx UNCTAD; http://www.unctadxi.org/templates/DocSearch____779.aspx
RTA/BIT_with_ISDS	Range from 1 to 3 for RTAs and/or BITs including ISDS provisions as defined in the main text; otherwise = 0	WTO; http://rtais.wto.org/UI/PublicMaintainRTAHome.aspx; Yackee (2009)
RTA/BIT/MFN_with_NT	Same as RTA/BIT_with_NT, but also accounting for NT resulting from MFN obligations in RTAs and BITs	WTO; http://rtais.wto.org/UI/PublicMaintainRTAHome.aspx UNCTAD; http://www.unctadxi.org/templates/DocSearch____779.aspx

Variable	Definition	Source
RTA_w/o_NT	Dummy variable set equal to one if RTA does not include NT provisions as defined in the main text	WTO; http://rtais.wto.org/UI/Publi cMaintainRTAHome.aspx
RTA_w/o_NT/ISDS	Dummy variable set equal to one if RTA neither includes NT provisions nor ISDS provisions as defined in the main text	WTO; http://rtais.wto.org/UI/Publi cMaintainRTAHome.aspx
BIT_w/o_NT	Dummy variable set equal to one if BIT does not include NT provisions as defined in the main text	UNCTAD; http://www.unctadxi.org/te mplates/DocSearch____779. aspx
BIT_w/o_NT/ISDS	Dummy variable set equal to one if BIT neither includes NT provisions nor ISDS provisions as defined in the main text	UNCTAD; http://www.unctadxi.org/te mplates/DocSearch____779. aspx; Yackee (2009)
WTO	Dummy variable set equal to one if the host country was a WTO member or party to the GATT in year x	WTO
GATS	Breadth of sectoral commitments as measured by the number of sub-sectors included in the host country's GATS schedule in year x.	WTO

Appendix B: Descriptive statistics

Variable	Observations	Mean	Std. dev.	Minimum	Maximum
ln (FDI)	14,077	0.29	0.82	0	5.30
ln (GDP)	14,077	23.22	1.71	19.14	28.08
ln (DiffGDPpc)	14,077	8.79	4.47	-10.08	11.21
Growth	14,077	3.47	5.57	-18.20	77.70
ln (Inflation)	14,077	3.01	1.69	-3.26	9.44
Openness	14,077	73.01	39.79	9.31	245.80
PolCon	14,077	0.253	0.20	0	0.68
DTT	14,077	0.205	0.39	0	1
ComCurr	14,077	0.009	0.09	0	1
BIT	14,077	0.175	0.37	0	1
RTA	14,077	0.046	0.20	0	1
RTA_with_NT	14,077	0.080	0.46	0	3
RTA_with_ISDS	14,077	0.017	0.22	0	3
RTA/BIT_with_NT	14,077	0.096	0.51	0	3
RTA/BIT_with_ISDS	7,510	0.560	1.10	0	3
RTA/BIT/MFN_with_NT	14,077	0.101	0.52	0	3
RTA_w/o_NT	14,077	0.017	0.12	0	1
RTA_w/o_NT/ISDS	7,510	0.016	0.12	0	1
BIT_w/o_NT	14,077	0.169	0.37	0	1
BIT_w/o_NT/ISDS	7,510	0.029	0.17	0	1
WTO	14,077	0.681	0.46	0	1
GATS	14,077	16.00	25.73	0	122

Appendix C: Source country sample

Argentina, Australia, Austria, Belgium-Luxembourg, *Brazil*, *Chile*, *Colombia*, Denmark, Finland, France, Germany, Iceland, Japan, Republic of Korea, *Malaysia*, *Mexico*, Netherlands, New Zealand, Portugal, Spain, Sweden, Switzerland, Chinese Taipei, *Thailand*, *Turkey*, United Kingdom, United States, *Venezuela*

Note: Developing source countries in *italics*.

Appendix D: Host country sample

Albania, Algeria, Angola, Argentina, Azerbaijan, Bangladesh, Bolivia, Botswana, Brazil, Bulgaria, Burkina Faso, Cameroon, Chile, China, Colombia, Republic of Congo, Costa Rica, Côte d'Ivoire, Croatia, Czech Republic, Dominican Republic, Ecuador, Egypt, El Salvador, Equatorial Guinea, Estonia, Ethiopia, Gambia, Ghana, Guatemala, Guinea, Guyana, Haiti, Honduras, Hungary, India, Indonesia, Jordan, Kazakhstan, Kenya, Latvia, Lithuania, Madagascar, Malaysia, Mali, Mauritius, Mexico, Mongolia, Morocco, Mozambique, Namibia, Nicaragua, Niger, Nigeria, Oman, Pakistan, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Romania, Russian Federation, Senegal, Seychelles, Slovakia, Sri Lanka, Sudan, Swaziland, Syrian Arab Republic, Tanzania, Thailand, Togo, Trinidad and Tobago, Tunisia, Turkey, Uganda, Ukraine, Uruguay, Venezuela, Vietnam, Zambia, Zimbabwe