Institutional Diversity in Trade Agreements and Foreign Direct Investment:

Credibility, Commitment, and Economic Flows in the Developing World, 1971-2007

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ABSTRACT: International trade agreements can help developing countries attract foreign direct investment. We ask whether differences in the specific provisions included in trade agreements can have differential effects on FDI. Can trade agreements with more credible commitments to protect investment induce more FDI than other agreements? We explore four institutional differences among preferential trade agreements (PTAs). We first examine whether those that have entered into force lead to greater FDI than PTAs that have merely been negotiated and signed. Second, do trade agreements that have investment clauses lead to greater FDI? Third, we examine the impact of dispute settlement mechanisms in PTAs. Turning to multilateral agreements, we differentiate the GATT from the WTO, since the latter allows member states to commit more credibly to more comprehensive obligations. Analyses of FDI flows into 125 developing countries from 1971 to 2007 show that more FDI is induced by trade agreements that include stronger mechanisms for credible commitment. Institutional diversity in international agreements matters.

I. Introduction

Developing country governments in the past two decades or so have increasingly sought to attract foreign direct investments (FDI) to their respective countries,[1] as they have come to regard FDI as important for increasing economic growth.[2] FDI flows into developing and transition economies have increased substantially over the years—amounting to $548 billion in 2009—and now represent half of all global FDI inflows.[3] And the importance of these flows for developing countries has grown from an average of barely 1% of GDP in the 1970s to over 3% of GDP recently.[4]

How can governments attract FDI? We focus on developing country governments' use of international trade agreements to attract foreign investors. In particular, we investigate the content of such agreements to see if certain provisions can be used as commitment devices to bring in foreign investment. This study of institutional variation helps highlight the causal mechanisms that might enhance the credibility of governments vis-à-vis foreign investors through international economic agreements.

In a recent analysis of FDI flows into 120 developing countries, Büthe and Milner provide systematic empirical support for the link between trade agreements and FDI.[5] Theoretically, they attribute the increased FDI to increases in the number of preferential trade agreements (PTAs) to which a country is a party because, they argue, these agreements allow a

[1] Kobrin (2005); Oman (2000); Cass (2007).
[2] The following studies among others suggest that under certain conditions FDI can increase growth: Borensztein et al. (1998); Bornschier et al. (1978); de Mello (1999); Blomström et al. (1994); Alfaro et al. (2010); Tang et al. (2008).
[3] UNCTAD (2010), xviii-xix. As recently as 2005, inward FDI flows to developing countries amounted to $334 billion (in current dollars) and accounted for only 36% of all inward FDI flows, see UNCTAD (2006), xvii. FDI is defined as "an investment involving a long-term relationship and reflecting a lasting interest and control by a resident entity in one economy ([the] foreign direct investor or parent enterprise) in an enterprise resident in an economy other than that of the foreign direct investor …" (UNCTAD 2003b), 231.
[4] UNCTAD (2011).
[5] Büthe and Milner (2008).

country to make more credible commitments to liberal economic policies than if the country chose such policies unilaterally through the domestic political process. Others have also shown that there is a strong association between PTAs and FDI inflows,[6] and much anecdotal evidence suggests that countries sign trade agreements not just—or maybe not even primarily—to increase trade flows but often in order to attract foreign investment. For instance, a 2005 Vietnamese government report about their bilateral trade agreement with the United States noted: "The comprehensive set of obligations in the [treaty] was expected to stimulate not only bilateral trade between the two countries, but also to increase the attractiveness of Vietnam for U.S. and many other foreign investors."[7] Turkey has sought EU membership inter alia to attract greater foreign direct investment.[8] Even the Chinese pursuit of WTO membership was reportedly motivated more by a desire to attract further foreign direct investment than by a desire for guaranteed openness of foreign markets for Chinese exports.[9]

We scrutinize the claim that trade agreements serve as devices for developing country governments to commit to policies that attract more foreign direct investment by examining more closely the most pertinent differences across those agreements. We argue that it is certain institutional features of trade agreements that enhance credibility, and that the design of agreements therefore conveys information about the credibility of governments.[10] We thus develop an argument about the features of trade agreements that might reduce foreign investors' assessment of the political risks they face and consequently induce foreign investment. Specifically, we point out three features of PTAs that should increase a government's credibility

[6] Blonigen and Piger (2011); Medvedev (2006).
[7] Foreign Investment Agency of Vietnam (2005).
[8] Barysch (2005).
[9] See, e.g., Hong (2008); Ianchovichina and Walmsley (2005); Xinhua News Agency (2001).
[10] Credibility is difficult to define. Some, like Martin (2000, 14) define it as a characteristic of a strategy: "a commitment is credible if the structure of the game makes it rational for actors to do what they say they will." We rely more on a definition that emphasizes beliefs, especially of foreign investors: a commitment is credible if firms believe that the host country will do what it has pledged to do.

with investors: whether or not the negotiated agreements are actually brought into force, whether agreements have clauses concerning the inducement or protection of investment, and whether they have dispute settlement mechanisms. In short, PTAs vary in the details of their terms, and we hypothesize that the above differences matter for a government's ability to achieve greater credibility with investors.

Examples are plentiful of multinational firms using investment clauses or dispute settlement mechanisms of trade agreements to limit or block government regulations or other interventions that affect the firms' investments. In a recent case (pending before an arbitration panel of the International Center for Settlement of Investment Disputes, ICSIC), Pacific Rim Mining Corporation, an American multinational, turned to the dispute settlement provisions of the Central-American Free Trade Agreement (CAFTA) to force the government of El Salvador to issue it permits the development of the El Dorado gold mine that it bought in the country in 2002.[11] In bringing the issue before ICSID, Pacific Rim alleged that its $77 million investment in the exploration of the mining site has been rendered worthless by the El Salvadorian government's indefinite delay in issuing permits that, according to Pacific Rim, should have been issued several years ago if the same criteria had been applied as in other and previous cases. The company therefore accuses the government of a breach of the investment clauses of the CAFTA clauses regarding foreign investment, which promise "fair and equitable treatment" of foreign investors from signatory countries. Pacific Rim, which is headquartered in Vancouver, Canada, was able to use the CAFTA provisions to bring this case in April 2009 thank to its U.S.

[11] Archibold (2011); Crowell & Moring (2009; 2010; 2011); Dewey & LeBoeuf (2011); ICSID (2011); Peterson (2011).

subsidiary.[12] This latter point suggests that PTAs with investment and dispute settlement provisions can protect more than just firms from the countries that are Parties to the treaty, but any firm with a subsidiary in a member country.[13] And such violations of PTA commitments have consequence: El Salvador's persistent difficulties with foreign investors, especially in the mining sector, have led to a decline in FDI since the Pacific Rim case was filed. We investigate systematically whether the investment and dispute settlement provisions of PTAs help developing countries attract FDI.

The multilateral trading system may provide additional evidence of the importance of credible commitment mechanisms for attracting FDI. We distinguish between the GATT and the WTO, which replaced the GATT in 1995. Numerous features of the WTO that were missing from the GATT suggest that the commitments undertaken under the WTO should have greater credibility: The WTO has a formal legal character, which the GATT did not, and was ratified by all countries joining.[14] Moreover, the countries that signed the WTO accepted the various agreements on separate issues such as non-tariff (technical) barriers to trade, government procurement, and intellectual property rights, which under the GATT had been addressed only weakly or in non-binding side-agreements, if at all. The WTO also has a stronger dispute settlement mechanism than the GATT. A substantial body of work has debated whether the WTO dispute settlement mechanism and the opportunities that it provides for enforcement make the commitments undertaken under the WTO more credible than those under GATT. By examining whether WTO membership indeed boosts inward FDI in excess of the increase in FDI

[12] The subsidiary was re-located only in 2008 from the Cayman islands to the United States, which has prompted El Salvador to challenge the company's standing (it's ability to bring a case under CAFTA), but so far El Salvador's petitions for ICSID to dismiss the case on jurisdictional grounds have failed.
[13] See the corresponding discussion of the coverage of BITs in Büthe and Milner (2009).
[14] For more detailed discussions, see e.g., Bagwell and Staiger (2009); Davis (2008) and Zangl (2001, 2008).

flows due to GATT membership, we provide new evidence in the debate over whether the WTO is a better system for trade regulation than the GATT.

Section II introduces our theoretical argument linking the above features of trade agreements to the credibility of a government's commitments and ultimately to foreign investors and their investment decisions. The hypotheses we develop are then examined in section III. Our data allow us to test the implications of our claims in a quantitative analysis of trade agreements and FDI flows into 125 developing and transition economies from 1971 to 2007. After identifying and controlling for other factors that may influence FDI flows, we show that the design elements of PTAs matter. PTAs with terms that enhance a host government's credibility induce greater FDI. In the final section we conclude by drawing some implications for the design of international agreements and for credible commitment claims in international politics.

II. Theory and Hypotheses

FDI involves the creation or acquisition of productive capacity by a multinational firm in a host country. In exchange for ownership, the investing company usually transfers some of its management, technology, trademarks, or other assets to the foreign country. This investment implies a long-term perspective and involves some assets that cannot be moved without considerable loss.

FDI is subject to all the risks that domestic investments face, but also involves additional risks in that investors face a foreign government, which may not be well known or accessible to them. Since host governments are often very keen to obtain this capital (and the jobs, taxes, and new technology that it promises to bring), the foreign firm usually is in the best bargaining position before it makes the investment, and is frequently able to obtain very favorable terms and

assurances from the government at this stage. Once an investment with high asset specificity is made, however, the relationship between the firm and the host country, especially their relative bargaining strengths, is subject to change. The "obsolescing bargain"[15] was an important concept for thinking through the changing bargaining dynamics between multinational firms and host governments. It claimed that once a firm undertakes a foreign direct investment, some bargaining power shifts to the host country government, which has an incentive to change the terms of the investment to reap a greater share of the benefits. This problem is exacerbated by the time-inconsistency problem faced by governments. Even governments who want to attract further FDI—and therefore have a long-run economic incentive not to violate the trust of current foreign investors—have in the short run incentives to change the terms of existing foreign investments when the short-run benefits exceed the long-term costs.[16] And resource-strapped developing country governments may have an even greater incentive than governments in advanced industrialized countries to discount the long term.

Firms face at least three types of risk associated with FDI: expropriation risk, contract risks, and policy risks.[17] In each case the host country can change some aspect of the relationship to reduce the value of the investment to the company. Firms want to avoid these situations, and before they undertake an investment, they would like the government to commit to leaving the investment's terms unchanged. Institutional mechanisms that allow governments to make such commitments credibly—and thus reduce any of these risks—can reassure investors and increase FDI.

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[15] Vernon (1971).

[16] See, e.g., Tomz (1997), 3f.

[17] As Kesternich and Schnitzer (2010, 208) point out: "MNEs can try to insure against political risk, but they can never do so fully…First, the insurance market for political risk is incomplete because most types of political risk are not contractible and because the market suffers from severe asymmetric information … Second, many investors are unaware of the existence of political risk insurance and even those who are aware of its existence often do not have such insurance."

Until the 1970s, when most FDI in developing countries was natural resource investment, outright expropriation was the primary risk arising from the obsolescing bargain.[18] In recent decades, host governments have largely foresworn outright expropriation of foreign investments, partly because the changing structure of FDI has rendered such direct threats to property rights less effective. For both manufacturing FDI and the increasingly important services FDI, investments into developing countries are often vertical; that is, investment by a firm to establish manufacturing or service operations in multiple host countries, each producing a different input to, or stage of, the firm's production process.[19] These types of investments are much less specific than investments in natural resources. Investments that are part of a firm's global production chain leave an expropriating government with depreciated assets. Consequently, outright expropriation is now a rare event, though one that has increased lately in some parts of the world.[20] Investment clauses in PTAs can alleviate firms' concerns about expropriation to some extent by limiting the conditions under which expropriation is permissible and establishing mechanisms to ensure that expropriated foreign investors will be promptly compensated.

Contract risk refers to the fact that the investment contracts that a firm may sign with host governments or with host country firms to provide services or other inputs might not be carried out as the foreign firm expected. In part this may be a result of the fact that contracts are inherently incomplete; in part it may be because host governments are corrupt and/or their

[18] Bergsten et al. (1978); Piper (1979); Truitt (1970).

[19] UNCTAD (2004), esp. pp.147ff; Gereffi (2005). Horizontal FDI could be identified as those establishments that are owned by a foreign parent, produce the same products as that parent, but sell them in their local market, while vertical FDI could be identified as establishments that are owned by a foreign parent, produce products that are intermediate inputs into the parent's production, and exports those inputs to the parent country. As of 1994, data show that about 30% of US multinational activity was related to vertical investment. This percentage has probably grown significantly since; see Chor et al. (2008). Some recent research disagrees and suggests that vertical FDI is much higher than this, but points out that most of this is between rich countries, see Alfaro and Charlton (2009).

[20] See Minor (1994); Li (2009a). Two countries that have recently practiced expropriation are Venezuela and Zimbabwe.

judiciaries are weak.[21] Firms in the host country, for instance, might renege on their contractual obligations and the multinational may fear that the host government and judiciary will not act, or will not act impartially, to uphold the multinational's rights. To alleviate these concerns, host governments can make third parties responsible for contract enforcement. DSMs in PTAs can thus help reduce this risk for multinationals.

Policy risk refers to the actions that host governments can take to alter policies that the multinational had assumed for its investments. Since foreign direct investments are not perfectly mobile, governments may be tempted to extract a greater share of the benefits through subtle measures, such as changes in regulation, taxation, tariffs, and fees, or selective law enforcement. In fact, any policy action that reduces the profitability and value of the asset may be of concern to the firm. For instance, trade restrictions may force MNCs to buy inputs from particular domestic suppliers; regulatory measures may force them to borrow capital from non-competitive domestic lenders. Given the myriad mechanisms for changing the terms of an investment and thus reducing its profitability, potential foreign investors are likely to be wary about committing significant resources to a developing country. Thus the central political problem for LDC host governments that want to attract FDI is how to assure foreign investors and reduce the risks for foreign firms.

We argue that trade agreements may boost FDI precisely because they have not just economic but also political effects, which can help governments reassure foreign investors and thus attract FDI.[22] These political effects include, most importantly, a commitment to open

[21] Egger and Winner (2003).
[22] The literature on MNCs also points out that firms can take actions to decrease the amount of political risk they face; they can make business choices that reduce political risk. See Kesternich and Schnitzer (2010); Eaton and Gersovitz (1984).

markets and liberal economic policies.[23] Trade agreements often commit a country not only to reduced tariffs but also more generally to liberal economic policies in the sense of refraining from a range of interventions in the market that might affect foreign direct investors. When an international agreement enshrines its members' commitment to a certain set of policies, a change in those policies has not only domestic ramifications, but also constitutes a breach of international commitments, which should make those commitments more costly to break.[24] Trade agreements thus institutionalize commitments to liberal economic policies, make these commitments more credible, and thus boost FDI for two reasons.

First, the international institutionalization of commitments provides information, which facilitates identifying and punishing those who renege on their commitments.[25] Second, such international institutions make it easier to bring costly pressure on governments if they do not carry through on those promises. Many trade agreements result in the creation of mechanisms that make it easier for private economic actors to solicit assistance from their "home" government to bring diplomatic pressure to bear on "a government that is considering or engaging in rule violation."[26] In addition, trade agreements often establish international dispute settlement mechanisms that make violating one's commitments more costly. The dispute settlement procedures of the WTO illustrate such mechanisms for multilateral trade agreements. Its panels (or its Appellate Body, if the panel decision is appealed) authorize economic sanctions against a government if it finds that the government has indeed violated its WTO commitments—and they publicly render final decisions about the merits within a reasonably short amount of time. The WTO thus provides a powerful tool to bring about a return to

[23] Büthe and Milner (2008).
[24] Keohane (1989), 5f; Simmons (2000a), 821f.
[25] Morrow (1994).
[26] Simmons (2000a), 821.

compliant behavior by governments that violate their WTO commitments. Many PTAs contain dispute settlement mechanisms that work similarly. Violating an institutionalized commitment—or not making amends to correct a violation that has occurred—also damages a country's reputation for keeping commitments, making future cooperation on the same and other issues more difficult and maybe impossible to achieve.[27] Signing a trade agreement thus raises the costs for countries if they try to renege on their commitment to economically liberal policies.

In this paper, we pursue this second argument about how trade agreements enable foreign firms and governments to bring pressure on home governments to avoid infringing on foreign investments and thus enhance a government's credibility in the eyes of foreign investors in greater detail. We first ask whether there are differences among PTAs in their ability to serve as credible commitments for governments. We take the design of trade agreements as exogenously given and ask about their impact on economic flows.[28] This analytical strategy risks decreasing the likelihood of finding empirical support for our argument: Governments with especially poor reputations vis-à-vis foreign investors may most need to establish greater credibility and hence may be willing to sign stricter agreements. But since they have worse reputations, they may still receive less foreign investment than an otherwise comparable country that signs less strict agreements.[29] It may thus be harder to identify an effect of the stricter terms of the PTA on investment flows.

II.1. Agreements in Force vs. Signed Agreement

We expect that some agreements will be more credible in the eyes of multinational firms than others because the terms they contain reduce the risks that foreign firms face. In particular,

[27] Abbott and Snidal (2000), 427; Simmons (2000b), 594; see also Tomz (2007b).
[28] Other research has tried to explain the design of these agreements, see, e.g., Hawkins et al. (2006); Koremenos et al. (2001); Koremenos (2005).
[29] Tomz (2007b).

agreements that have been ratified by the host government domestically and are in force should have a more reassuring effect on investors than ones that have merely been signed by the governments after international negotiations. Domestic ratification serves as an important hurdle that governments, especially democratic ones, need to surmount to bring a trade agreement into force. As Haftel has pointed out, it is the ratification or entry into force rather than the signing of international agreements that makes the commitments undertaken in such agreements legally binding and hence more credible.[30] Ratification also increases the credibility of a government's commitment since reneging later then means violating both a commitment that is binding under international law and one that is binding under domestic law. The ongoing dispute between the US and Mexico under the NAFTA agreement on trucking illustrates this political logic: Mexico has been able to pursue its claims in a way that is more costly for the United States in part because Congress ratified NAFTA. As Martin has argued, once an agreement is ratified domestically, the majority of the legislature, which has voted for it, becomes a force for its implementation, and hence makes it more likely that a country will comply with its obligations in the agreement.[31]

The average time between signing and entry into force for all agreements for which we have data is 325 days, though the median is only 217 days. There are 13 observations where the delay was more than 1000 days (and 12 observations where the agreement went into force the same day it was signed). In sum, there is variation in the time between signing and ratification. Entry into force upon domestic ratification, we claim, makes a commitment more credible to foreign parties. We anticipate that FDI will more be prevalent for PTAs that have entered into force than ones that remain signed only.

[30] Haftel (2010).
[31] Martin (2000).

II.2. Investment Provisions

The design of various features within a PTA can also affect its ability to credibly commit a government. Some trade agreements do not mention the treatment of foreign investment at all. Some mention the signatories' desire to see increased foreign investment and the intent to treat it favorably. Some go further and include provisions that explicitly commit the parties to the agreement to protect and foster foreign investment or to settle disputes over it in certain ways. What effect do these differences have on the impact of the agreements? Such investment clauses in PTAs now often exceed the provisions in bilateral investment treaties (BITs); and even when they only duplicate the terms of BITs, they may be viewed as more credible since they are tied to trade flows.[32] If so, they should induce more investment than produced by PTAs that contain no investment provisions.

Recently, PTAs have become more and more likely to include clauses referring to the treatment of investments, as trade and investment flows have become increasingly linked. Investments in developing countries are now often part of a firm's global production chain. Multinationals use facilities in developing countries for certain parts of their production or service operations; especially those in which the developing country has a relative abundance of resources, such as low skill labor. The firms then import inputs into the developing country and export more processed goods and services out of it. These production chains link trade and investment flows by multinationals tightly.[33] Trade agreements thus have become a more prominent arena to address investment issues. Indeed as one report notes: "A number of claims

[32] We do not focus on BITs, although we do include them as a control. Other research has shown them to have had an important effect on FDI through at least 2000 (Büthe and Milner 2008; Kerner 2009; Neumayer and Spess 2005). Tobin and Busch (2010) find that BITs may increase the likelihood of a PTA between the signatories and thus indirectly boost FDI; Ziegler (2011) shows that investment clauses in PTAs tend to be more extensive than those in BITs.

[33] Recent research shows that trade barriers hurt both trade flows and foreign investment. Trade is an integral part of multinational activity; trade often complements foreign investment, it need not substitute for it (Irarrazabal, Moxnes, and Opromolla 2010).

under NAFTA's investment chapter have been related to trade issues (including public procurement and countervailing duties)."[34] More recent PTAs are more likely to have investment clauses and their investment provisions more frequently entail stricter rules about how to treat foreign investment.[35] These clauses can reassure a firm that the host government will treat it as promised since the promise has the force of the trade agreement behind it.

Investment clauses should have even more reassurance power if they specify the kind of treatment (national, or MFN) that the foreign investor will receive. Articles 1102 and 1103 of the NAFTA agreement (part of the investment chapter) show how these stricter provisions can work. National treatment promises that "each Party shall accord to investors of another Party treatment no less favorable than that it accords, in like circumstances, to its own investors with respect to the establishment, acquisition, expansion, management, conduct, operation, and sale or other disposition of investments" (article 1102). MFN treatment, on the other hand, warrants that "each Party shall accord to investors of another Party treatment no less favorable than [the treatment] that it accords, in like circumstances, to investors of any other Party or of a non-Party with respect to the establishment, acquisition, expansion, management, conduct, operation, and sale or other disposition of investments" (article 1103). In contrast, the EFTA-Mexico PTA, for example, has an investment provision (section V), which offers some protection for FDI, but makes no mention of MFN or national treatment. Its provisions are thus weaker than those in NAFTA. More specific and stricter clauses like those in NAFTA should enhance the credibility of the host government's commitment to treat foreign investors fairly; thus they should reduce the risks associated with the investment. PTAs that contain investment clauses should induce

[34] Ziegler (2011).
[35] See also Berger et al. (2010); Lesher and Miroudot (2007).

more FDI than those without any clause, and those with stricter clauses should induce even more FDI.

II.3. Dispute Settlement Procedures

Third, provisions for dispute settlement also matter. Many of the multinational firms involved in trading in developing countries are also investors or potential ones. The inclusion of a mechanism for settling disputes with the host government is especially important for these firms. It raises the cost for a host government to renege on its treatment of the multinational. Some PTAs make no mention of DSMs at all; other PTAs have lengthy procedures for handling disputes but do not provide for outside arbitration. The free trade agreement between Jordan and Egypt, for instance, devotes an entire article (#20 in chapter two) to a joint trade committee to implement and monitor the agreement, but does not provide for third party adjudication. This type of agreement undoubtedly encourages investors, but only to the degree they expect the countries' domestic courts to be impartial. Other PTAs allow for third party adjudication. NAFTA, the EFTA-Singapore PTA and a number of other PTAs, for example, allow for WTO to be the forum for dispute settlement.

Having well developed DSMs can help reassure investors in a number of ways. Dispute settlement procedures sometimes even give firms "standing," that is, allow firms to initiate the case and thus give them agenda-setting power vis-à-vis the governments.[36] Furthermore, trade and investment issues are often tightly linked so that a trade dispute often involves multinational firms. Once a dispute case has begun, the government faces costs in lost public image and

[36] For instance, article 26 of COMESA, "Reference by Legal and Natural Persons," states that "Any person who is resident in a Member State may refer for determination by the Court the legality of any act, regulation, directive, or decision of the Council or of a Member State on the grounds that such act, directive, decision or regulation is unlawful or an infringement of the provisions of this Treaty: Provided that where the matter for determination relates to any act, regulation, directive or decision by a Member State, such person shall not refer the matter for determination under this Article unless he has first exhausted local remedies in the national courts or tribunals of the Member State."

reputation as well as potentially high legal expenses. The fact that countries often time the launch of disputes to coincide with the elections of the opposing government suggests that they understand the negative implications that international disputes can have for host countries.[37] As UNCTAD notes, for instance, about NAFTA: "A special [dispute settlement] mechanism is applicable to investment disputes arising between an investor of a Member State of the NAFTA and the Dispute Settlement host country of the investment, in respect of damages that may be caused by the failure of the host country to implement the protections granted under the Agreement."[38] This mechanism provides investors with the assurance of a specific mechanism that they can use, thus meeting one of the objectives of the NAFTA, which is to "increase investment opportunities in the territories of its Members." Disputes usually must argue that "nullification or impairment" of the terms of the agreement have occurred and that compensation or equal suspension of the terms is required to neutralize this. If the case goes to final judgment and the host state loses, then it must pay some form of compensation. With a third party outside the host state being the arbiter of the case, the firm might feel even more reassured that the government will not take steps that are detrimental its investment. This obviously raises the costs of violating an agreement for a host state. But even short of this outcome, the launching of a dispute against it can be costly in terms of reputation and public opinion.[39] Such costs should deter host states from infringing on foreign investments; and knowing this, firms should feel reassured about risks of a foreign investment. Hence we expect that PTAs that include DSMs should lead to more FDI than otherwise; and ones that use third party adjudication should attract even more FDI, as they raise the costs for host governments even more.

[37] Chaudoin (2011).
[38] UNCTAD (2003a), 2.
[39] Tomz (2007a).

II.4. WTO versus GATT

Our final claim about institutional variation turns to the multilateral trading system and asks how differences in its design affect FDI. Do the different terms embodied in the GATT and WTO have different implications for government credibility? Given our arguments above, the answer should be affirmative. The WTO represents a multilateral agreement that has the standing of international law and was ratified by the member countries. The GATT did not. In addition, the WTO has a stronger DSM process. The improvements in the DSM include a stricter timetable, the right to a panel, the right to appeal panel decisions to an Appellate Body whose decisions are binding (unless overturned by the member states unanimously). The defending state cannot block a dispute, nor drag it out forever. In addition, states have to follow established legal procedures and precedents more than in the GATT. As Busch and Reinhardt note: Among the [WTO] DSU's more notable reforms are stricter timelines on proceedings, the right to a Panel (carried over from the 1989 Dispute Settlement Procedures Improvements), automatic adoption of reports (except by 'negative consensus'), and review by the standing AB. … In addition, "standard terms of reference and the automatic adoption of rulings lend greater legal coherence to the system as a whole."[40]

This stronger DSM process should serve to reassure foreign investors. In all cases, the reforms to the WTO DSM raise the cost for a country to renege on the terms of its agreement, and this should make cheating less likely, ceteris paribus. Knowing this, firms should be more likely to invest in WTO members. Hence we expect WTO membership to induce more FDI than GATT membership.

[40] Busch and Reinhardt (2003), 721. See also Davis (2009); Iida (2004); Kim (2010); Palmeter and Mavroidis (1998).

This discussion provides us with the following four hypotheses. The next section brings our data to bear on them.

H_1: PTAs that have been ratified domestically and entered into force induce more FDI than PTAs that merely been signed by the governments after international negotiations.

H_2: PTAs with investment clauses attract more FDI than PTAs without, and PTAs with stricter investment clauses will attract even more.

H_3: PTAs with dispute settlement mechanisms attract more FDI than PTAs without DSM, and PTAs with strong DSMs, which provide for 3rd party adjudication, will attract even more.

H_4: Membership in the WTO will more strongly increase FDI than membership in the GATT.

III. Empirical Analysis

Investment and Dispute Settlement Clauses in PTAs

First, we provide a brief overview of the data about the specific provisions contained in the 385 reciprocal trade agreements in our dataset.[41] Figure 1 shows the total number of active PTAs as well as the percentage of them with some kind of investment and DSM provision. PTAs that contain any provisions for a dispute settlement procedure are coded as DSM1 agreements, while PTAs with dispute settlement mechanism that allows the complaining party to use a third party forum are considered DSM2 agreements.[42] For the investment provisions, if there is any mention of promoting bilateral investment, then the agreement is coded as having a weak investment provision. If, in addition, there are significant provisions in the agreement to foster and protect bilateral or multilateral foreign investment—such as National Treatment, Most-Favored Nation treatment, or an investment chapter with sanctions for violations, then the PTA is coded as having a strict investment provision. As is apparent from Figure 1, DSMs are generally more prevalent than investment provisions. Moreover, most PTAs that include investment clauses tend to include third party adjudication (correlation 0.56).

[41] Our new dataset of PTAs contains data on 385 PTAs through 2007. Büthe and Milner used data on 254 PTAs ending in 1999 (from Pevehouse, see Mansfield, Milner, and Pevehouse 2007, 2008).
[42] In the discussion below, we also refer to these as PTAs having a "basic" vs. a "strong" DSM.

[FIGURE 1 ABOUT HERE]

Figure 2 shows the number of new PTAs with DSM and investment provisions entering into force, by decade. The 1990s and 2000s have seen the most new PTAs. Notable here is the fact that investment clauses have clearly been increasing in number and strictness over time. DSMs (at least those at the basic level, DSM1) have been prevalent for many years. These charts show that PTAs vary in whether they contain provisions for dispute settlement and investment, and in the strength of those provisions. We stipulate that this institutional variation among PTAs has differential effects on FDI.

[FIGURE 2 ABOUT HERE]

Using this data, we examine the hypotheses developed above through statistical analyses of annual observations of inward foreign direct investment flows into developing countries since 1970.[43] Our dependent variable is the sum of the year's new direct investments in a given "host" country by investors (usually multinational corporations) that are foreign to the host country (net of direct investments withdrawn by foreign capital owners) from year *t-1* to *t*. We calculate this annual net inward FDI flow as a percentage of GDP to eliminate the need to deflate our dependent variable and to make it comparable across countries and across time.[44] We have updated and extended all data through 2007. This makes the sample used in our main analyses fully one third (33.1%) larger than the sample used by Büthe and Milner.[45] In addition, to probe

[43] Data on FDI flows into developing countries starts in 1970. Because lagged FDI flows are included in our error correction models, the analyses cover annual FDI flows starting in 1971.
[44] This operationalized measure of inward FDI flows has been used in numerous recent analyses, including Ahlquist (2006); Biglaiser and DeRouen (2006); Blanton and Blanton (2007); Büthe and Milner (2008); Choi and Sami (2008); Jensen (2003, 2006). Our data is from the online version of UNCTAD's *Handbook of Statistics*.
[45] The coups component of our summary measure of political instability/violence, an important political control variable described below, has been omitted by the Arthur Banks dataset in recent years, making 2007 that we could include in the analyses.

the robustness of our results, we also look at the log of the amount of FDI inflows in constant dollars.[46] There has been debate in the field over which measure of FDI flows to use; here we examine both.[47] Second, we gathered data not just on when a PTA was signed but also on each PTA's domestic ratification. This allows us to distinguish trade agreements that have entered into force from those that have merely been signed but not (yet) entered into force. For the annual observations, we record the cumulative number of PTAs that a country has either signed or the subset of signed PTAs that have entered into force by the end of each year. Third, we have coded the text of the PTAs for the presence and strength of investment and dispute settlement provisions.

FTAs may, via the credible commitments they entail, have short-term/immediate effect and/or an effect that persists over time. To model these (possible) dynamic effects over time — and allow for long-term equilibria between our key variables—we use error correction models (ECMs) to estimate the effect of trade agreements on FDI. These powerful dynamic models, which are equivalent to autoregressive distributed lag (ADL) models after a straightforward mathematical transformation,[48] also provide a safeguard against spurious correlation that might arise in time series analysis when variables are trending together.[49] As is customary in the social sciences, we estimate the ECMs such that the change in FDI from time t-1 to time t is our dependent variable (rather than the level of FDI in the corresponding ADL model). The right hand side of this ECM equation then includes the lagged level of FDI (i.e., the original

[46] Taking the log of negative numbers or zero returns a missing value, which would lead to a substantial loss of cases from the sample. While there is no single, agreed-upon way to deal with this, we consider Osborne (2002) and Li (2009b)'s preferred method to be most suitable to minimizing the loss of observations. Consequently, we created the dependent variable for these analyses by multiplying FDI by 1000 (which was sufficient to ensure that the log of any positive values would be greater than 1), then took the log of the absolute value of this transformed FDI measure. For country-years with negative inward FDI flows, we then added a negative sign to the logged value.
[47] See esp. Choi (2009b); Li (2009b); and Choi (2009a).
[48] De Boef and Keele (2008).
[49] We also estimated the models using OLS, GLS, and other standard methods, as discussed among the robustness checks below.

dependent variable, lagged), as well as both the lagged level and the change from time *t-1* to time *t* for each of the independent variables. Because the level of and the change in independent variables are included, the ECMs show both the long term and the short term effects of the variables. The coefficient estimated for the change in a given variable then measures the short-term effect of increases or decreases in that independent variable, while the coefficient estimated for the level of a given variables captures the longer-term effects. ECMs provide a powerful tool for understanding dynamic processes that have long and short term effects. For example, for PTAs in force, the coefficient for the change measure (ΔPTAS IN FORCE) estimates the immediate effect (or "impact propensity") of having a new PTAs enter into force. The coefficient for the (1-period lagged) level variable PTAS IN FORCE, by contrast, estimates the effect of the cumulative number of PTAs in force, which persists over time.[50] In the models, the standard errors are clustered by country but there are no fixed effects.

The estimated effect of the level of each independent variable persists over time via the lagged dependent variable. In order to assess the resulting total long-run effects of the independent variables, we re-estimate each ECM with the Bewley transformation, as suggested by De Boef and Keele.[51] This involves a two-stage regression using the same variables as in the standard ECM, but in the first stage, the dependent variable is the change in FDI from time *t-1* to time *t*. The instruments in the first stage are the lagged level of FDI and the contemporaneous values of the independent variables as well as the ECM change variables (change from time *t-1* to time *t*). The dependent variable in the second stage is the level of FDI and the independent variables are contemporaneous values of the independent variables and the change variables. The coefficients from the 2nd stage then provide estimates of the total increase in the dependent

[50] The logic of our argument primarily makes predictions about a positive long-run effect of PTAs on FDI rather than predicting a short-term spike in FDI upon the entry into force of such agreements.
[51] Bewley (1979); De Boef and Keele (2008).

variable caused by a one unit increase in the independent variables if it persists over time.[52] Below we report both the ECM regressions and the long-run multipliers ones. Table 1 provides summary statistics on all of our variables.

[TABLE 1 ABOUT HERE]

Baseline Findings: PTAs Signed and In Force

We start by re-estimating Büthe and Milner's model 4 as an ECM and with our new data but for the same countries and time period covered by their analysis (model 1 in Table 2).[53] The model includes *SIGNED PTAS*, a measure of the cumulative number of PTAs signed by the FDI-receiving country, which ranges from zero to 14 for the developing country-years in this analysis, and *GATT/WTO MEMBERSHIP*, coded 1 for every year in which the country is a member of GATT or WTO (0 otherwise). The model also includes all of the control variables included in Büthe and Milner's model 4 (and in much of the literature on FDI flows into developing countries): three control variables to capture political determinants of inward FDI flows into developing countries: *SIGNED BITS* (the number of bilateral investment treaties that a country has signed),[54] *DOMESTIC POLITICAL CONSTRAINTS* (Withold Henisz's preference-weighted measure of the number of veto players in a country's domestic political system),[55] and *POLITICAL INSTABILITY* (the composite measure from Arthur Banks' dataset of political events that indicate political

[52] This "long-run propensity" (LRP) can also be calculated directly from the estimated coefficients for the lagged level of each independent variable in the standard ECM by the absolute value of the lagged dependent variable in the ECM models, but Bewley method simultaneously estimates standard errors for the LRP, which are otherwise very cumbersome to compute.
[53] Büthe and Milner (2008), 749f. We lose 69 observations due to missing data in WDI, mostly for the economic controls for some country-years in the latest (February 2010) update of WDI.
[54] Büthe and Milner (2009); Haftel (2010); Kerner (2009); Neumayer and Spess (2005); Salacuse and Sullivan (2005).
[55] See Henisz (2000), esp. 4-11, 27-30.

violence and instability;[56] as well as three standard economic control variables: the host country's *MARKET SIZE* (log of the population), the level of *ECONOMIC DEVELOPMENT* (log of per capita GDP in constant dollars), and *GDP GROWTH* (the percentage change in the country's real GDP from the previous year).[57]. As is standard in error correction models, we also include a change variable for each measure: that is, the change in value from *t-1* to *t*. The estimated coefficients for this model confirm that signing PTAs leads to substantively and statistically significantly greater inward FDI flows.[58]

We have argued above, however, that international agreements should constrain governments mostly when they are binding. Commitments undertaken in an international agreement are under international law binding only after the agreement has been ratified by the signatory states and notifications of ratification have been exchanged.[59] In model 2, we therefore replace the single measure of signed PTAs with two measures. First, we include *PTAS IN FORCE* (which is equal to the number of PTAs that a country has signed and ratified, and which have entered into force). Second, to allow for any possible additional effect on FDI by PTAs that have only been signed but not (yet) entered into force, we also include a measure of the number of *PTAS ONLY SIGNED*.[60] We also replace the measure of signed bilateral investment treaties (BITs) with two measures, following the same logic; all other variables remain the same.[61] The

[56] Banks (1999).
[57] Data for the economic control variables are from the World Bank's *World Development Indicators* database in February 2010 and consequently also differ (slightly) from the data used by Büthe and Milner. By construction, all regressors enter into ECMs with the levels lagged by 1 year, which is appropriate since a change in political or economic conditions may take some time to affect FDI. Note that the main results do not depend upon the inclusion of any of the control variables.
[58] GATT/WTO membership, however, is no longer significant with the new data and in the dynamic model.
[59] In multilateral agreements, it is often specified that the agreement enters into force—for the subset of countries that have ratified it—once a minimum number of signatories have ratified it (and have deposited a legal instrument to that effect).
[60] Note that the number of signed-only PTAs is 0 for 2,082 and 1 for 300 of the 2,455 observations in our sample, since most PTAs enter into force within a few months after they are signed. Consequently, the two measures are correlated only at 0.22.
[61] The findings for PTAs hold irrespective of whether the change in measuring BITs is made at the same time or not.

sample is extended to 2007, the most recent year for which we have data for all of the control variables. This adds 784 observations and substantially lengthens the time series for many countries (to a maximum length of 37 years). Extending the analysis by adding data for 2001-2007 should be particularly useful for assessing the effect of trade agreements, since developing countries have continued to establish new PTAs or join existing ones at a rapid pace. The maximum number of PTAs in force for any country-year in our sample has increased from 14 in the analysis for 1971-2000 to 20 in the analysis for 1971-2007.[62]

The estimated effect of the cumulative number of PTAS IN FORCE in model 1A in Table 2 is larger and statistically more significant than the estimated effect for the undifferentiated PTA measure (signed PTAs, whether in force or not) in column 1.[63] By contrast, the PTAs that a country has signed, but which have not yet entered into force, appear to have no effect on FDI. Since it is clearly PTAS IN FORCE rather than PTAS ONLY SIGNED that are affecting FDI, we drop the signed-only measure in model 2 and subsequent models.[64] In column 4 of Table 2, we show the long-run (LRP) effect of PTAS IN FORCE, which is also positive and highly significant. The estimated effect of GATT/WTO MEMBERSHIP is now positive but not statistically significant at conventional levels. Among the estimated effects of the other political and economic factors in the model, the most notable is GDP GROWTH whose significant estimated coefficient is substantially larger with data for 1971-2007 than for 1971-2000.[65] Most importantly, the number of PTAs *in force* is a strong and statistically significant predictor of inward FDI flows,

[62] The mean has increased from 2.3 to 3.2 PTAs/country.
[63] The difference is due to differentiating between signed-only PTAs and PTAs in force, not due to estimating the model for the longer time period 1971-2007.
[64] If *PTAS ONLY SIGNED* is included in any of the subsequent models, it does not attain significance, either. The same finding holds for the BITs variable. Not that, although BITs in force appears to just miss conventional levels of significance in model 1a, the estimated long-run propensity is substantially and statistically significant at $p < 0.05$.
[65] Both with 1971-2000 and with 1971-2007 data, the absolute value of the bivariate correlations between GDP GROWTH and the other regressors is never more than 0.19, suggesting that this is not an artifact of multicollinearity.

supporting our hypothesis that the greater credibility of the commitments enshrined in PTAs that have entered into force increases a country's attractiveness to foreign direct investors.

[TABLE 2 ABOUT HERE]

Institutional Diversity I: GATT vs. WTO

We now turn to examining differences among these international institutions. We focus first on the multilateral trade regime known since 1947 as the General Agreement on Tariff and Trade (GATT) and its successor, the World Trade Organization (WTO). As discussed above, GATT and WTO differ greatly as international institutions: WTO membership entails far more comprehensive obligations (including on regulatory matters, intellectual property rights protections, etc.) provides for more extensive monitoring, and has a much stronger DSM than GATT.

For assessing the difference between GATT and WTO, the extension of the analysis through 2007 is particularly important because it increases the share of country-years with WTO membership among the total observations from 14.7% for 1970-2000 to 29.7%. This increase is in large part due to the additional years during which the WTO was in existence but also due to the pattern of WTO membership among developing countries. Although many developing countries that had previously been members of the GATT hesitated to take on the additional obligations entailed in WTO membership, most of them became members of the WTO relatively quickly after the WTO was established. By 1997, GATT and WTO membership fully converged among the developing countries in our sample. During this period, however, many more developing countries joined the WTO than had been in the GATT. Overall, the share of WTO members among the countries in our sample rose from 55% during the WTO's first year, in 1995, to 82% in 2007.

In model 3 of Table 2, we therefore replace the single indicator GATT/WTO MEMBERSHIP with two separate indicators. *WTO MEMBERSHIP* is coded 1 for all country-years in which the country was a full member of the WTO (zero otherwise);[66] *GATT-only MEMBERSHIP* is coded 1 for all country-years in which the country was a formal member of the GATT but not of the WTO (zero otherwise).[67] The consequence of allowing for GATT and WTO to affect foreign investment flows differently is striking: The estimated effect of WTO MEMBERSHIP is almost five times as large as the effect estimated for the combined GATT/WTO indicator in model 3, and it is statistically strongly significant. The coefficient estimated for GATT-only MEMBERSHIP, by contrast, is statistically insignificant. The change slightly reduces the estimated effect of PTAS IN FORCE, but PTAs retain a highly significant positive correlation with inward FDI flows. None of the other findings change markedly, except that BITs in force are no longer significant. The more credible commitments enshrined in the WTO have a larger positive effect on FDI that the GATT did.

Institutional Diversity II: Variations in Investment Clauses

We next consider institutional diversity among PTAs, focusing first on whether or not they have investment clauses and how strong those investment clauses are.[68] To capture this institutional variation, we start by creating a *2-CATEGORY INVESTMENT-WEIGHTED measure of PTAs*, which gives extra weight to the PTAs that contain any investment clause. Specifically, in

[66] Based on the information provided by the WTO at "Understanding the WTO: Members" (http://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm, last accessed 25 February 2011). We do not count observer members, since observers have neither rights nor obligations, other than ordinarily to begin negotiations for full membership within five years.

[67] The GATT continues to exist as part of the WTO. To distinguish more cleanly, our GATT indicator is for GATT-only membership. A lively debate in recent years has focused on the GATT "membership" status of former colonies; see the exchanges between Rose (2004, 2007), Goldstein, Rivers, and Tomz (2007), Gowa (2010), Gowa and Kim (2005), and Tomz, Goldstein, and Rivers (2007). We do not consider the informal membership emphasized by Goldstein *et al* because it created rights but not binding obligations for developing countries.

[68] Given our finding above that PTAs that have only been signed but not yet entered into force have no significant effect on FDI flows, we focus only on PTAs in force and omit PTAS ONLY SIGNED from model 4 and our subsequent empirical models.

tallying a country's PTAs-in-force for this measure, we add a 2 for every PTA that contains an investment clause (regardless of strength) and a 1 for every PTA without such provisions. A country that is a party to three PTAs in a given year, of which two have investment clauses, would therefore have a score of five on the 2-CATEGORY INVESTMENT-WEIGHTED measure of PTAs. Our argument leads us to expect a positive, statistically significant coefficient for this measure.

In model 4 of Table 3, we use this 2-CATEGORY INVESTMENT-WEIGHTED measure of PTAs instead of our standard measure of cumulative PTAs IN FORCE. The weighted measure is positive and strongly statistically significant. To compare the total effect of PTAs in general (from model 2 in Table 2) with the total effect of PTAs with and without investment clauses (from model 4 of Table 3), one has to compare the values of the long-run propensity for the PTA variables. The cumulative long-run effect (LRP) estimated for model 2 is 0.212 and thus greater than the one calculated for the 2-CATEGORY INVESTMENT-WEIGHTED measure of PTAs in model 4, which is 0.124. This means that PTAs without investment clauses boost inward FDI less than PTAs in force on average, but PTAs with investment provisions boost inward FDI flows more than PTAs in force on average.[69] WTO (but not GATT) membership remains a substantive and statistically significant predictor of inward FDI, as does economic (GDP) growth; none of the estimates for the other variables changes significantly.[70]

In model 5, we replace the 2-CATEGORY INVESTMENT-WEIGHTED measure of PTAs with two separate variables. There are numerous advantages to using a single weighted index rather than multiple measures, but using separate measures provides an important robustness check,

[69] Given the weights used in the construction of the index, the estimated LRP must be multiplied by 2 to arrive at the estimated effect of an additional PTA with investment provisions.

[70] To conserve space in Tables 2 and 3 (models 4-11), we omit the estimated coefficients for the first differences of the control variables (i.e., change in each of the control variables from *t-1* to time *t*) since these effects are not of theoretical interest for our analysis. Unless otherwise noted, the estimated coefficients (available on request) are approximately of the same magnitude and significance as in model 3.

especially since the index by construction forces a particular relationship upon PTAs with investment clauses relative to PTAs without investment clauses. The estimated coefficients generally support the relative weight given to PTAs with and without investment clauses in the index construction.[71] And the difference between PTAs with and without such clauses matters. Statistically, the estimated coefficient for the PTAs without investment clauses is positive but not significant whereas the estimated effect of PTAs with investment clauses is strongly significant.

To assess the substantive importance of these clauses for FDI, we calculate the effect of increasing each of the two PTA variables by one standard deviation. We multiply the coefficient of the long-run multiplier by the variable's standard deviation to obtain the substantive effect on FDI. This calculation should yield very conservative estimates of the effect since the standard deviation for the measure of PTAs without investment clauses is twice as large as the standard deviation for PTAs with investment clauses. Based on the estimated coefficients for model 5, we find that that a one standard-deviation increase in the number of PTAs in force without investment clauses leads to a long-run increase in inward FDI flows of 0.29% of GDP but the effect is insignificant. By contrast, a corresponding increase in the number of PTAs *with* investment clauses boosts FDI by 0.36% of the host country's GDP, and this effect is significant. In short, the specific provisions in PTAs matter for their ability to attract FDI, consistent with our argument about PTAs as commitment devices.

In model 6, we differentiate further, using the distinction between weak and strict investment provisions to encode a *3-CATEGORY INVESTMENT-WEIGHTED index of PTAs*. In constructing this index, PTAs without any mention of investment are given a weight of 1, PTAs with weak investment provisions are given a weight of 2, and PTAs with strict investment

[71] Note also that models 4 and 5 fit the data equally well.

provisions are given a weight of 3.[72] Consequently, a country with three PTAs (in a given year), of which one contains strict investment clauses, one contains weak investment provisions, and the third makes no mention of investment, would be given a score of 6. The logic of our argument again suggests a positive, statistically significant coefficient for the level (though not necessarily for the short-term change) of this measure in ECMs. And indeed we estimate a strongly significant positive coefficient for the 3-CATEGORY INVESTMENT-WEIGHTED index of PTAs. Substantively, the estimated effect implies a smaller increase in FDI for PTAs with no investment clause than for PTAs in general as estimated in model 2, a similar increase for PTAs with weak investment clauses, and a greater increase in FDI for PTAs with strict investment clauses relative to PTAs on average.

[TABLE 3 ABOUT HERE]

We next examine the robustness of these findings to the inclusion of two measures of foreign economic policy that are substantially a function of domestic choices. First, we consider the degree of a country's financial openness, using Brune's *FINANCIAL OPENNESS INDEX*, which measures the extent to which a country restricts capital account transactions, based on IMF reports.[73] The coefficient estimated for the FINANCIAL OPENNESS INDEX, however, is never close to any conventional threshold of statistical significance.[74] Second, we proxy *TRADE OPENNESS* by including the sum of exports and imports as a percentage of the country's GDP. Measuring actual trade flows, this is a very indirect measure of trade policy, but it captures the aggregate effect of a broad range of measures (including regulatory and other non-tariff barriers to trade),

[72] As discussed in section I, we consider a PTA to have "strict" investment provisions if it entails specific commitments concerning the government's treatment of foreign investors or gives them specific rights otherwise reserved for domestic firms or citizens.
[73] See Brune (2007); Johnston et al (1999).
[74] Results available upon request. We interpret the lack of significance for the financial openness index as suggesting that the index should *not* be included in the model.

which governments might put into place to protect domestic firms or extract rents.[75] As expected, it is positively correlated with our measures of trade agreements, but the correlation is below 0.3, suggesting that multicollinearity should not be a major issue.

The positive coefficient estimated for TRADE OPENNESS in model 7 of Table 3 is highly statistically significant, suggesting that trade and FDI flows have been, for developing countries, more complements than substitutes during the time period analyzed here (1971-2007).[76] Most importantly, the effect on FDI estimated for the investment-provisions-weighted measure of PTAs becomes even stronger and is now highly statistically significant. Only WTO membership is no longer statistically significant when we include trade in the model. Controlling for trade thus reinforces our main conclusion: Having investment clauses in PTAs makes a real difference for attracting FDI; institutional variation matters.

Institutional Diversity III: Variations in Dispute Settlement Procedures

Similar findings emerge from the analysis of provisions for the settlement of disputes.[77] As in the analysis of investment clauses, we create two measures of PTAs weighted by the existence and strength of provisions for a dispute settlement mechanism. Our *2-CATEGORY MEASURE OF DSM-WEIGHTED PTAS* is a count of the number of PTAs (in force for the country in question), weighted based on whether or not each PTA establishes a dispute settlement mechanism (DSM). In model 8 of Table 4, we use this measure (encoded just like the 2-catetory investment-weighted measure of PTAs) instead of our standard measure of cumulative PTAs-in-force.

[75] See, e.g., Bhagwati (1988); Kono (2006); Mansfield and Busch (1995); Naoi (2009); Ray and Marvel (1984).
[76] In addition, we estimate a highly statistically significant coefficient for change in trade-as-a-percentage-of-GDP.
[77] We test for the effect of having procedures for dispute settlement in PTAs separately from our analysis of investment provisions because PTAs with dispute settlement provisions are highly correlated with PTAs with investment provisions.

We find this 2-CATEGORY-DSM-WEIGHTED measure to be highly statistically significant, and the model exhibits a slightly better fit than model 2. The long-run propensity of 0.116 suggests that a PTA without DSM provisions boosts inward FDI less, but a PTA with DSM provisions boosts inward FDI flows slightly more than estimated for PTAs on average based on model 2. WTO (but not GATT) membership remains a significant positive predictor of inward FDI flows, as does economic (GDP) growth; market size is still negatively related to FDI flows.

Next, in model 9 in Table 4, we replace the DSM-weighted index with two separate variables. The first is a count of the number of PTAs without any DSM provisions that are in force for a given country in a given year. The second variable measures the number of PTAs in force with any type of DSM provisions. The estimated coefficients are consistent with the coefficient previously estimated for the DSM-weighted measure. They also show another important difference: While the estimated effect of PTAs with DSMs is positive and highly statistically significant, the estimated effect of PTAs without DSMs is clearly insignificant. The cumulative long-run effect of a PTA with DSM is also positive and significant, unlike that for PTAs without DSMs. The substantive significance becomes apparent when we calculate the effect of a one standard deviation increase in each variable. Such an increase in the number of PTAs with no DSM provision is estimated to decrease inward FDI by 0.09% of the host country's GDP, whereas such an increase in the number of PTAs with a DSM is estimated to boost inward FDI by 0.66% of GDP.

In model 10 of Table 4, we differentiate further, using the distinction between basic and strong DSM provisions to create a *3-CATEGORY index of DSM-WEIGHTED PTAs.* Strong DSMs are distinguished by allowing the states that participate in the PTA to take a dispute to a 3rd-party panel/arbitrator. Here, PTAs without a DSM are given a weight of 1, PTAs with basic DSM

provisions are given a weight of 2, and PTAs that entail a strong DSM are given a weight of 3. A country with one of each of these PTAs in force in a given year would thus score a 6 on this measure. We estimate a positive and highly statistically significant coefficient for this 3-CATEGORY DSM-WEIGHTED measure.

As before, we consider the robustness of the results when measures of foreign economic policy are included. In model 11 of Table 4, we add TRADE OPENNESS and estimate a positive and significant coefficient for it, suggesting again that trade and FDI flows are more complements than substitutes (FINANCIAL OPENNESS is always insignificant as before). Most importantly, the estimated effect of having PTAs with DSM provisions remains highly significant and even slightly increases substantively. Again WTO membership loses significance when trade openness is included in the models. Even including measures that capture a country's domestic economic reforms, we still find that the design of PTAs matters. The greater credibility attached to PTAs with stronger DSMs leads to higher levels of FDI, as it reassures private investors about a country's likely future policy.

[TABLE 4 ABOUT HERE]

A Specific Illustration of the Effect of PTA Investment Provisions on FDI Flows

To get a better sense of the statistically estimated effects and add some concreteness to these results, we use propensity scoring to match for closer analysis countries that signed a PTA with investment provisions and maximally similar countries that signed a PTA without an investment provision. Building on the statistical analysis, we matched countries on GDP and GDP per capita (both in constant dollars), GDP growth, population, domestic political institutions, BITs, and the year. This allows us to compare a closely matched pair (in which both countries has signed a PTA, but only one includes an investment clause, without the need to

"control" for those variables as alternative explanations for changes in inward FDI flows after a PTA is signed. For closer comparison, we looked especially for pairs or groups of countries from the same region during the same time periods. This technique pairs, for instance, Bulgaria which in 2004 formed PTAs with investment provisions with both Serbia and Bosnia with Belarus which in 2004 joined a PTA without investment provisions, called the Common Economic Zone. The former experienced large increases in FDI as a percent of GDP while the latter's FDI ratio rose and fell unevenly in the years after this agreement.[78] Similarly, our matching pairs Colombia in 1999, when the ANDEAN Pact (including Colombia) signed a PTA with Brazil, and the Dominican Republic in 2007, when it joined CAFTA-DR. The former did not contain an investment provisions, and Colombian FDI inflows stagnated after ratification, whereas the latter contained such a provision and has led to rising FDI inflows into Colombia after ratification. Figure 3 shows the average level of FDI as a percentage of GDP for four matched pairs of South American countries in PTAs with and without investment provisions.[79] It is clear that PTAs with investment provisions attract more FDI than those without such provisions. These cases which control for the other critical influences on FDI (through the matching process) show that investment provisions in PTAs seem to have an important effect on foreign investors.

[FIGURE 3 ABOUT HERE]

[78] In this particular case, the impending membership of Bulgaria in the European Union (a special political-economic PTA), effective in 2007, might provide an alternative explanation. We therefore focus hereafter on Latin American countries.

[79] The matched pairs are (PTA with investment provisions first) Chile 1994 and Brazil 1999; Chile 1999 and Argentina 2000; Ecuador 1994 and Argentina 1991; Panama 1996 and Uruguay 1991.

Additional Robustness Checks

We have subjected the above findings to a series of robustness checks. First, we re-estimated the models using the various alternative estimation methods used by Büthe and Milner in their analyses, including OLS with clustered standard errors, OLS with panel-corrected standard errors (PCSE), and feasible generalized least squares (GLS) estimation, allowing for an autoregressive (AR1) process.[80] Our main finding—that PTAs with institutional features that make them stronger instruments for credible commitments strongly increase inward FDI into developing countries—is robust to the use of these alternative methods.[81]

Another series of robustness checks involved using the amount of FDI in constant dollars, rather than FDI as a percentage of GDP as our dependent variable. Since some scholars feel this is a more appropriate for a measure of FDI,[82] we re-estimated all of our models for this alternative dependent variable. Our results are largely sustained when doing this; only those for investment provisions weaken significantly.[83] This suggests that our findings are fairly robust to the form of the dependent variable we are using.

In order to examine the assumptions that the number of PTAs affects FDI in a linear fashion (which is implicit in the empirical models estimated above), we also added quadratic terms to all the models (PTAs and PTAs squared).[84] We found that the quadratic terms were not close to standard levels of significance and did not improve the fit of the model. Thus we do not

[80] For these estimations, we de-trended all variables that exhibited a significant trend to deal with the violation of the Gauss-Markov assumptions that is inherent when there are trends in the data and to avoid spurious correlation. These models also included country fixed effects to control for unobserved and time-invariant cross-national differences.

[81] The addition of country fixed effects or the addition of country and year fixed effects to our error correction models also does not change our main results. If we add a time trend to models 5 and 9, for example, we find that PTAs in force are positive though insignificant, but PTAs with investment provisions or PTAs with DSMs, respectively, are both positive and significant.

[82] See footnote 48 and accompanying text, above.

[83] The results are similar if negative values of FDI are treated as missing or if they are transformed as described in footnote 47.

[84] See, e.g., Tobin and Busch (2010) for possible reasons to expect a curvilinear relationship.

see evidence of decreasing marginal returns from our PTA variables; more agreements and stronger terms add credibility.

As a further step, using our original data and analysis, we differentiated among the PTA by signatories, distinguishing those signed by the developing FDI host country with a major power from all other PTAs. We wanted to see in particular whether it is PTAs with the US, the EU or Japan that are driving our result: do these PTAs have more credibility than others? The results were surprising. Our PTA variables for those NOT including the US, EU or Japan remained largely significant. The separate measure for the number of PTAs that included the US, EU or Japan was by and large insignificant. These last two results suggest that it is not particular countries that are driving these results, but rather the trade agreement itself and its provisions that matter.

Finally, we also restricted the sample by excluding various subsets of countries and even entire regions to ensure that the results are not unduly driven by FDI flows into particular countries or regions (they are not).[85] And we re-estimated models 4-11 with the combined GATT/WTO variable to ensure that none of the findings depend upon making the GATT/WTO distinction (they do not). We also replaced Henisz's measure of political constraints with alternative measures of domestic political institutions to ensure that none of our main findings depend upon the use of this particular measure of domestic institutions (they do not).[86]

IV. Conclusion

International trade and FDI are increasingly linked. Multinational corporations account for a large percentage of world trade flows, and they use them to service their foreign

[85] The only change we see is when Central Europe is excluded in certain models.
[86] The alternative measure of domestic institutions (POLITY) also was not significant itself, and including the left-right orientation of the governments had no effect and was not significant, either.

investments. Global production networks are predominant aspects of the world economy now and they tightly knit trade and investment around the globe. The rules governing trade thus have implications for foreign investment. This paper has examined the link between trade agreements and foreign direct investment flows. We have scrutinized the claim that such international economic agreements enable governments of developing countries to attract more FDI by allowing them to make more credible commitments to policies sought by foreign investors. We first developed a theoretical argument about institutional differences across international trade agreements, which render some agreements more conducive to making such commitments. We hypothesized that FDI flows into developing countries should therefore be systematically correlated with certain institutional features across PTAs: More FDI should be expected to go to countries with PTAs that have entered into force, to countries with PTAs that contain stricter investment and/or dispute settlement provisions, and to countries which participate in the multilateral trade regime under the WTO (more so than to countries that participate only in the GATT and even more so than to countries that do not participate in either).

Our statistical analyses provide strong empirical support for our central hypotheses. Drawing on a new dataset, we are able to distinguish between agreements that have been merely signed and agreements that have entered into force. We find that most of the FDI increase previously attributed to signed agreements can in fact be attributed to the agreements that have entered into force through domestic ratification, thus making the commitment binding and more credible. Institutional differences matter: PTAs with investment clauses or with dispute settlement mechanisms lead to more FDI than PTAs without such provisions, and ones with stricter clauses lead to even more investment. Correspondingly, while membership in GATT does not significantly boost FDI inflows, membership in the WTO, which combines more

extensive commitments with stronger dispute settlement mechanisms, sometimes leads to significant inward FDI flows.

This research also has broader implications. For scholars of institutions, our work provides further evidence of the importance of the institutional context in which commitments are undertaken. Even scholars and policymakers who are interested only in domestic policy would do well to consider the possibility of changing or "locking in" policy through international institutions. Second, our findings suggest that the specific provisions of international economic agreements and the resulting institutional diversity across agreements have consequences not just for the relations between the governments involved but also for perceptions of political risk by private economic actors. The design of international institutions thus matters, and our research suggests additional reasons why seemingly secondary provisions, such as for a dispute settlement mechanism, are often contentious and why negotiations over such provisions can be so difficult.[87] Our findings also suggest additional reasons why so many developing countries have, after some initial hesitation, joined the WTO as full members. For scholars who seek to explain the initial design of international agreements, indirect consequences—such as the investment consequences of international trade agreements—may warrant greater attention. Third, our research contributes to the empirical literature on international law.[88] We show not only that international law matters, but also that it matters for international investors, especially for multinational companies considering investments in developing countries. The design of international institutions then can have important implications for policymakers seeking to promote economic development.

[87] See also Koremenos (2007).
[88] For a recent, comprehensive review, see Ginsburg and Shaffer (2009).

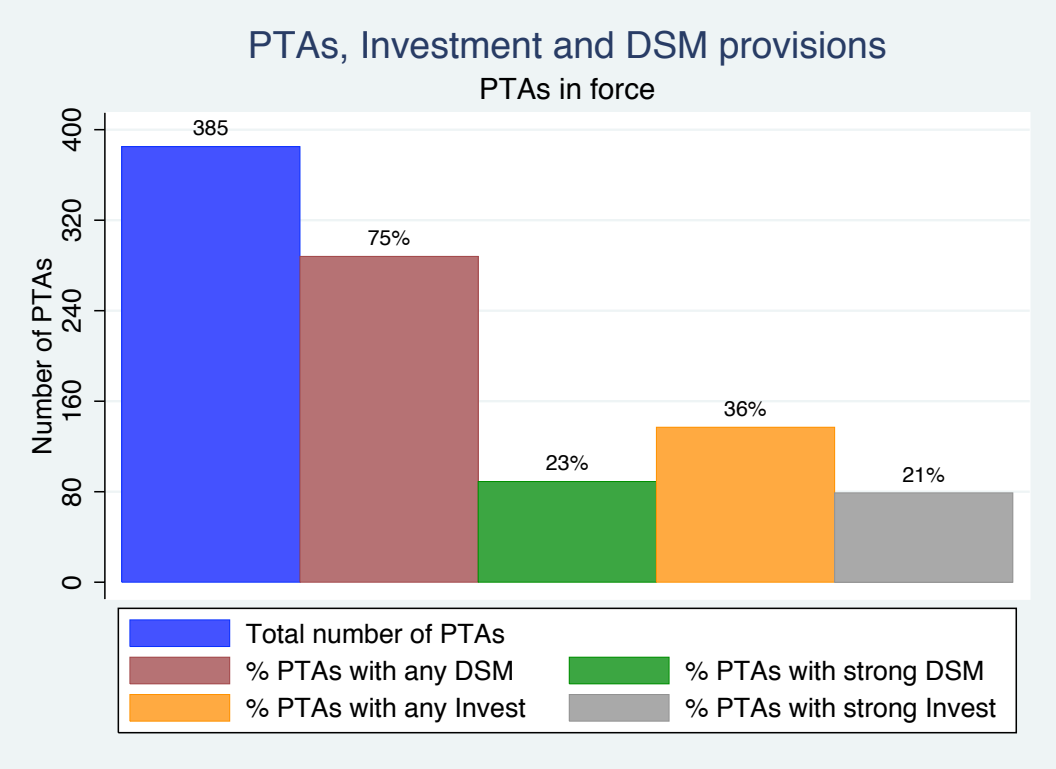

Figure 1
All PTAs by DSM and Investment Provisions

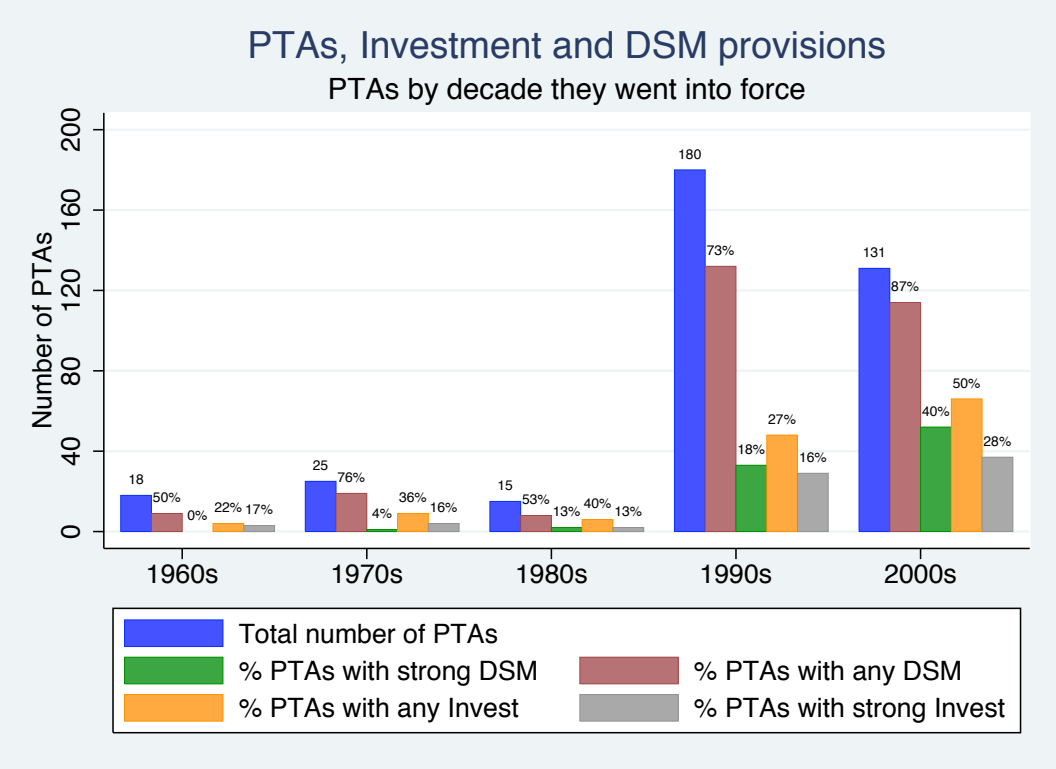

Figure 2
PTAs by DSM or Investment Provisions, by Decade

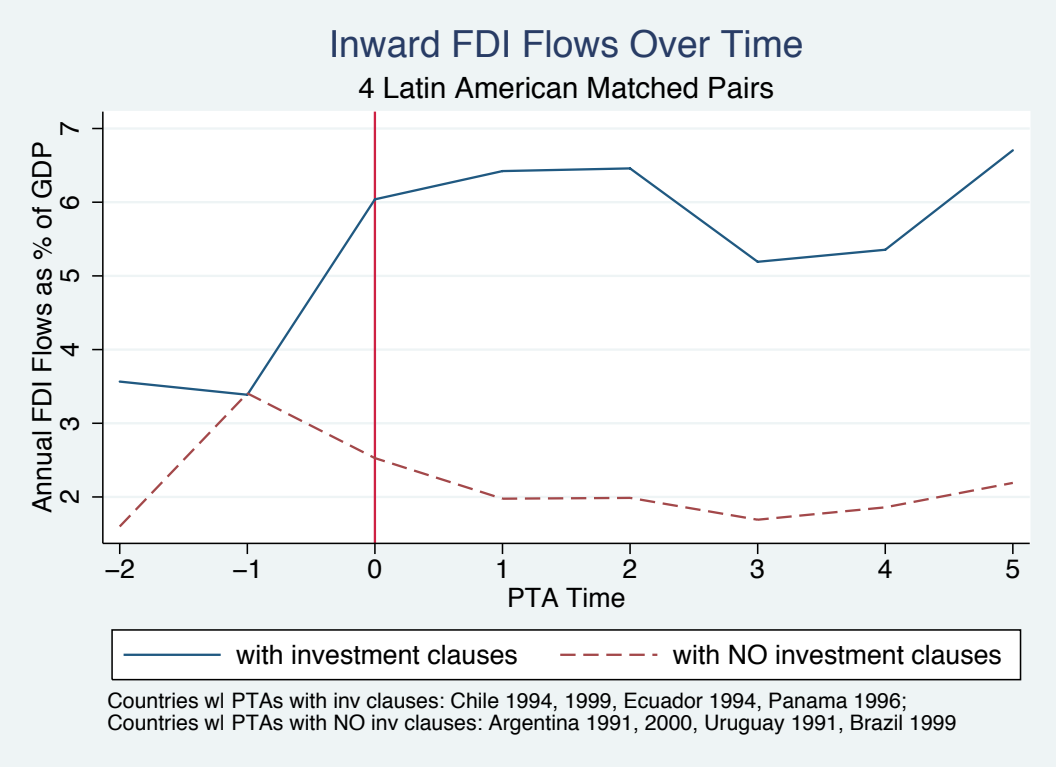

Figure 3
Matched Cases of Countries' FDI Inflows, PTAs with and without Investment Clauses

Table 1: Summary Statistics

	N	Mean	Std. Dev.	min.	max.
FDI (as a % of GDP)	3270	2.471	5.152	-65.4109	92.10403
Signed PTAs	3270	3.471	3.167	0	21
PTAs in force	3270	3.270	3.002	0	20
PTAs signed only	3270	0.201	0.722	-5	9
Inv-weighted PTAs (2 category measure)	3270	4.375	3.804	0	30
Inv-weighted PTAs (3 category measure)	3270	5.203	4.513	0	42
PTAs without inv. Provisions	3270	2.165	2.659	0	19
PTAs with inv. Provisions	3270	1.105	1.326	0	13
DSM-weighted PTAs (2 category measure)	3270	5.324	4.870	0	33
DSM -weighted PTAs (3 category measure)	3270	5.661	5.480	0	49
PTAs without DSM provisions	3270	1.216	1.750	0	18
PTAs with DSM provisions	3270	2.054	2.092	0	16
GATT/WTO membership	3270	0.674	0.469	0	1
GATT (only) membership	3270	0.369	0.483	0	1
WTO membership	3270	0.305	0.460	0	1
Signed BITs	3270	10.919	15.648	0	120
BITs signed only	3270	3.363	4.957	0	37
BITs in force	3270	7.556	12.100	0	93
Domestic Political Constraints	3270	0.189	0.211	0	0.73
Political Instability	3270	2.190	4.352	0	49
Market Size	3270	16.128	1.383	13.816	20.994
Economic Development	3270	6.855	1.258	4.131	10.749
GDP Growth	3270	3.745	6.616	-51.031	106.280
Trade (X+M) as % of GDP	3187	68.161	38.065	6.320	438.092

Note: Data for up to 3270 obs are used in the analyses, but only a maximum of 3152 obs of the dependent variable are analyzed due to the inclusion of lagged and first-differences on the right-hand side of the regression equations.

Table 2: Signed vs. In-Force PTAs

	Model 1	Model 1a	Model 2	*LRP (model 2)*	Model 3
Lagged FDI as % of GDP	-0.396***	-0.489***	-0.488***		-0.495***
	(.0370)	(.105)	(.105)		(.103)
Signed PTAs	0.0471*				
	(.0271)				
PTAs in force		0.0988***	0.103***	0.212***	0.0677**
		(.0339)	(.0333)	(.0735)	(.0342)
PTAs only signed		0.0284			
		(.192)			
GATT/WTO membership	-0.0366	0.148	0.141	0.288	
	(.154)	(.209)	(.210)	(.463)	
GATT (only) membership					-0.191
					(.219)
WTO membership					0.686**
					(.287)
Signed BITs	0.0147**				
	(.00662)				
BITs in force		0.0173‡	0.0200*	0.0410**	0.0127
		(.0105)	(.0106)	(.0166)	(.0105)
BITs signed only		0.0201			
		(.0236)			
Domestic Political Constraints	0.137	0.350	0.383	0.784	-0.0382
	(.405)	(.535)	(.535)	(1.07)	(.526)
Political Instability	-0.0183*	-0.0209	-0.0257**	-0.0527	-0.0178
	(.0110)	(.0137)	(.0125)	(.0326)	(.0134)
Market Size	-0.143***	-0.241**	-0.217**	-0.444***	-0.206**
	(.0529)	(.110)	(.103)	(.136)	(.101)
Economic Development	0.0322	0.0267	0.0356	0.0728	0.0499
	(.0746)	(.102)	(.0998)	(.206)	(.102)
GDP Growth	0.0668	1.47**	1.425**	2.960***	1.45**
	(.0777)	(.640)	(.640)	(.818)	(.637)
Δ Signed PTAs	0.0915				
	(.135)				
Δ PTAs in force		0.135	0.197*		0.178
		(.192)	(.110)		(.108)
Δ PTAs only signed		-0.0475			
		(.0729)			
Δ GATT/WTO	0.528	0.409	0.399		
	(.394)	(.365)	(.365)		
Δ GATT					0.343
					(.351)
Δ WTO					0.678
					(.423)
Δ Signed BITs	0.0432				
	(.0409)				
ΔBITs in force		0.0549	0.0492		0.0470
		(.0517)	(.0364)		(.0372)
Δ BITs only signed		0.0648			
		(.0384)			
Δ Political Constraints	1.19**	0.948**	1.02**		0.944**
	(.506)	(0.518)	(.508)		(.501)
Δ Political Instability	-0.0186**	-0.0109	-0.0135		-0.00809
	(.00780)	(.0148)	(.0142)		(.0152)

Δ Market Size	1.30	-132**	-133**		-137**
	(7.94)	(57.2)	(57.1)		(57.2)
Δ Economic Development	9.40	-136**	-136**		-136**
	(7.17)	(61.8)	(61.8)		(61.6)
Δ GDP Growth	-0.0777	1.39**	1.39**		1.39**
	(.0789)	(0.600)	(.600)		(.598)
constant	2.67**	3.43*	3.06*		3.06**
	(1.07)	(1.78)	(1.65)		(1.63)
R^2	0.1995	0.3151	0.3144		0.3181
n (clusters = countries)	121	123	123	123	123
N	2368	3152	3152	3152	3152
Years covered	1971-2000	1971-2007	1971-2007		1971-2007

Notes: Error correction models with robust standard errors clustered on country. All level variables lagged 1 year; change variables measured from time t-1 to time t. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; two-tailed tests.

Table 3: PTAs weighted by Investment Provisions

Δ	Model 4	*LRP (4)*	Model 5	*LRP (5)*	Model 6	Model 7
Lagged FDI as % of GDP	-0.495***		-0.495***		-0.495***	-0.433***
	(.103)		(.103)		(.104)	(.086)
Inv-weighted PTAs (2 category measure)	0.0605**	0.124**				
	(.026)	(.055)				
PTAs w| investment clauses			0.134**	0.271**		
			(.062)	(.122)		
PTAs without inv. clauses			0.0539	0.109		
			(.037)	(.078)		
Inv-weighted PTAs (3 category measure)					0.0506**	0.0748***
					(.020)	(.020)
GATT (only) membership	-0.206	-0.438	-0.213	-0.430	-0.230	-0.293
	(.221)	(.398)	(.224)	(.396)	(.225)	(.203)
WTO membership	0.604**	1.206*	0.584**	1.180*	0.573**	0.147
	(.291)	(.672)	(.264)	(.634)	(.288)	(.255)
BITs in force	0.0128	0.0260	0.0132	0.0267	0.0141	0.000237
	(.010)	(.018)	(.010)	(.018)	(.010)	(.010)
Trade (X+M) as % of GDP						0.0149***
						(.004)
Domestic Political Constraints	-0.0276	-0.0417	-0.0226	-0.0456	0.00336	0.110
	(.529)	(1.07)	(.535)	(1.08)	(.529)	(.376)
Political Instability	-0.0168	-0.0335	-0.0165	-0.0334	-0.0162	-0.00523
	(.013)	(.031)	(.014)	(.032)	(.014)	(.015)
Market Size	-0.200**	-0.403***	-0.199**	-0.402***	-0.203**	0.0268
	(.100)	(.137)	(.100)	(.137)	(.100)	(.078)
Economic Development	0.0485	0.0995	0.0474	0.0958	0.0484	-0.119
	(.103)	(.209)	(.104)	(.211)	(.103)	(.076)
GDP Growth	1.447**	2.920***	1.448**	2.924***	1.446**	0.416
	(.637)	(.810)	(.636)	(.806)	(.636)	(.650)
Δ in inv-weighted PTAs (2 category measure)	0.122					
	(.187)					
Δ in PTAs with investment clauses			0.163			
			(.240)			
Δ in PTAs without investment clauses			0.179*			
			(.105)			
Δ in inv-weighted PTAs (3 category measure)					0.0730	-0.00419
					(0.084)	(0.064)
constant	2.970*	6.002**	2.977*	6.015**	3.079*	0.0101
	(1.61)	(2.39)	(1.612)	(2.39)	(1.61)	(1.45)
R^2	0.3184		0.3184		0.3180	0.2361
n (clusters = countries)	123	123	123	123	123	122
N	3152	3152	3152	3152	3152	3067

Notes: Error correction models with robust standard errors clustered on country; years covered: 1971-2007. All level variables lagged 1 year; change variables measured from time t-1 to time t. All variables shown were included as both level and change in the regressions (estimated coefficients for change in control variables omitted from table to save space). * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; two-tailed tests.

Table 4: PTAs weighted by DSM Provisions

	Model 8	*LRP (8)*	Model 9	*LRP (9)*	Model 10	Model 11
Lagged FDI as % of GDP	-0.496***		-0.497***		-0.496***	-0.431***
	(.102)		(.102)		(.103)	(.085)
DSM-weighted PTAs (2 category measure)	0.0574***	0.116**				
	(.020)	(.044)				
PTAs with DSM provisions			0.157***	0.317***		
			(.046)	(.100)		
PTAs w|out DSM provisions			-0.0261	-0.0525		
			(.058)	(.116)		
DSM-weighted PTAs (3 category measure)					0.0500***	0.0544***
					(.017)	(.016)
GATT (only) membership	-0.181	-0.365	-0.198	-0.398	-0.192	-0.272
	(.221)	(.400)	(.217)	(.388)	(.221)	(.200)
WTO membership	0.641**	1.292*	0.607**	1.221*	0.637**	0.293
	(.283)	(.660)	(.274)	(.636)	(.281)	(.249)
BITs in force	0.0107	0.0216	0.0115	0.0232	0.0111	-0.000678
	(.010)	(.018)	(.010)	(.018)	(.010)	(.010)
Trade (X+M) as % of GDP						0.0139***
						(.004)
Domestic Political Constraints	-0.0926	-0.187	-0.185	-0.372	-0.108	-0.0259
	(.522)	(1.06)	(.524)	(1.07)	(.520)	(.369)
Political Instability	-0.0174	-0.0351	-0.0168	-0.0339	-0.0182	-0.00373
	(.013)	(.031)	(.014)	(.032)	(.013)	(.015)
Market Size	-0.197*	-0.397***	-0.195*	-0.392***	-0.204**	0.00533
	(.101)	(.138)	(.100)	(.138)	(.101)	(.079)
Economic Development	0.0607	0.122	0.0731	0.147	0.0530	-0.107
	(.102)	(.207)	(.103)	(.209)	(.101)	(.075)
GDP Growth	1.45**	2.91***	1.45**	2.92***	1.45**	0.408
	(.638)	(.814)	(.637)	(.809)	(.638)	(.649)
Δ in DSM-weighted PTAs (2 category measure)	0.120*					
	(.065)					
Δ in PTAs with DSM provisions			0.241*			
			(.126)			
Δ in PTAs without DSM provisions			0.123			
			(.103)			
Δ in DSM-weighted PTAs (3 category measure)					0.101*	0.0386
					(.053)	(.037)
constant	2.78*		2.69		2.98*	0.334
	(1.63)		(1.64)		(1.64)	(1.45)
R^2	0.3190		0.3198		0.3189	0.2351
n (clusters = countries)	123	123	123	123	123	122
N	3152	3152	3152	3152	3152	3067

Notes: Error correction models with robust standard errors clustered on country; years covered: 1971-2007. All level variables lagged 1 year; change variables measured from time t-1 to time t. All variables shown were included as both level and change in the regressions (estimated coefficients for change in control variables omitted from table to save space). * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; two-tailed tests.

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