

Importing Transparency: The Political Economy of BITs and FDI Flows

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August 4, 2012

Abstract

We explore the determinants of a state, desirous of foreign capital, to decide to accede to a Bilateral Investment Treaty (BIT). We develop (and test) a theory that non-democratic states with weak and opaque domestic institutions are indeed the states most likely to sign a BIT. Weak in the sense that policy shifts are unpredictable and capricious, and property right are insecure. Such states sign these treaties exactly because they seek to import a more stable and transparent regime with stronger property rights protections than they are able to adopt at home. Secondly, once we have a theory of BIT accession, we are in a position to address the effect of BITs on Foreign Direct Investment (FDI) flows, taking account of the fact that states have self-selected into these treaties in the first place. We find that when controlling for this endogenous selection into the set of countries that have signed, the effect of BIT accession is indeed to increase the inflows of FDI for those countries most in need of an improved institutional and policy environment - the non-democratic and non-transparent polities. Democracies and transparent polities sign less frequently. But their investment climate is ex ante better, and FDI flows are not noticeably affected by the absence of a BIT. Hence for these states, any BITS that are signed do not have substantial effects on FDI flows.

*Wilf Department of Politics, 19 West 4th Street, New York, NY 10012. Thanks to panel participants at the American Political Science Association Annual Meetings in Seattle, 2011, to participants at the Conference on Multinational Corporations and World Politics, Kraków, Poland, 2011. In particular, we thank James Hollyer for help and advice, Christina Davis and Randall Stone for extensive comments and to Leonardo Baccini, Tim Büthe and Jennifer Tobin for sharing their data.

INTRODUCTION

Capital accumulation is the cornerstone of economic development. Capital is, however, susceptible to expropriation and income and profit are susceptible to excessive taxation by capricious and unpredictable governments. If the investment climate in any country is weak - perhaps because governments have a poor reputation for protecting property rights, or the domestic institutions that defend against state takings are not present or unreliable - investors are unlikely to invest. In contrast, a climate in which government's promises not to tax or expropriate are credible is one in which investors will require lower risk premia in order to make investments, especially across international borders.

Both reputation and domestic institutions matter for the credibility of a country's investment climate. Both are difficult to build and easy to destroy. They must not only exist, but they must be seen to exist and to be functioning properly. Yet many states find it difficult, if not impossible, to build and maintain reputations and institutions and to entrench these crucial institutions in the fabric of the polity and the economy.

Barriers to the formation and entrenchment include may be political or historical in origin. Historical barriers to the development of an hospitable investment are likely when norms of property rights protection have failed to take hold, or the state has developed and emerged without sufficient capacity to protect property rights. Colonial history, legal systems (and the structure of the judiciary), ethnic conflict have all been identified with weak states and weak institutional development, failing to adequately reign in the extractive power of the state. Institutional structures that have emerged over long periods have a tendency to continue to survive, making institutional change difficult or unlikely (Acemoglu, Johnson and Robinson, 2001).

Political barriers to reform may be distributional - new rules require cooperation of entrenched interests to be implemented. Reforms may be blocked or delayed, because groups with influence can't agree on how the costs associated with the new institutional struc-

ture should be allocated. (Alesina and Drazen, 1991), or they don't know ex ante if they will bear the costs of institutional shift (Fernandez and Rodrik, 1991). Alternatively the political barriers have to do with the structure of the polity. Leaders constrained, say by multiple veto players, or accountable to a large electorate, will find that changing rules, or building institutions, or changing norms and reputations very difficult to achieve, requiring the consent of various political interests (Tsebelis, 2002). Alternatively, leaders with no veto players, and maximal discretion could attempt to build situations that foster investment and development - but such a leader suffers from a credibility problem. Just as easily as the rules were written, the judges appointed, the tax rates set, these could be overturned and reversed. Knowing this, potential investors may shy away from investing in what is perceived to be a highly unstable environment (Drazen and Masson, 1994).

Internal institution and reputation building is likely to be blocked, compromised, and prevented by all these internal (and external) constraints. Leaders however, often have more autonomy or discretion when it comes to international agreements. International agreements often incorporate, build or establish a set of rules, norms and behaviors that are considered acceptable, and by implication specifies those behaviors to be deemed non-compliant. These agreements regulate international interactions - they generate focal points, coordinate expectations, eliminate or reduce incomplete information, offer commitment devices etc. By signing such an international agreement, the leader effectively imports the institutions (and effectively a reputation) that can enhance development; these institutions are adopted, having the jumped the internal barriers that prevented their emergence domestically.

Bilateral investment treaties (BITs) are devices for institution-poor countries to import institutions that are clear and transparent. BITs credibly commit host governments to minimizing arbitrary and capricious policy shifts, punitive tax rates, and outright expropriation, as well as provide clear limits on policy-choices, and predictable procedures for policy changes. Not only do rules governing property rights and tax treatment get adopted, but violations of those rules have consequences at the international level - enhancing the

credibility of the government to limit discretionary and arbitrary changes in policy, and thereby encouraging higher levels of investment.

BITs are legal instruments signed between states that take on the force of international law, and govern the rights and obligations of states that host foreign capital within their jurisdictions. In ratifying a BIT, a state incorporates the terms of the treaty as part of its legal system (Salacuse and Sullivan, 2005). To varying degrees, BITs provide a compelling mechanism to credibly import a set of institutions that commit a state not to expropriate, over-regulate, over-tax, or otherwise excessively interfere in the market, and endangers the signatories with “swift, substantial compensation” in the instance of violation.

In order to capture the strength of a country’s reputation or its domestic institutions that protect property rights, we rely on two fundamental preconditions for explanatory leverage: transparency and democracy. In order for a country to establish a “good” reputation with respect to private property protection, investors must be able to observe the government’s previous behavior with respect to investment. Observability, or transparency is central to the inferences potential investors will draw with respect to the investment climate. Domestic institutions such as non-corrupt, clean bureaucracies or clear and effective rulings by the courts, enhance the transparency of the investment environment; other institutions such as the rule of law or, limits on the use and abuse of executive power or the electoral accountability of the executive, are features of democratic polities and they too enhance the protection of private property and encourage investment.

In non-transparent, non-democratic environments, governments have real difficulty conveying their intent to protect private property. We argue here that BITs limit the degree to which unexpected, capricious, and politically-motivated policy changes can be foisted upon foreign investors. They significantly reduce investment risk in non-transparent, non-democratic environments.

This paper explores two questions simultaneously. We explore the determinants of a state, desirous of foreign capital, to decide to accede to a BIT. We develop (and test) a theory

that non-transparent states (states with poor institutions and reputations) are indeed the states most likely to sign a BIT, and this is especially true in non-democratic polities. Such states sign these treaties exactly because they seek to import a more stable, reliable and transparent regime with stronger property rights protections than they are able to adopt at home.

Secondly, once we have a theory of BIT accession, we are in a position to address the effect of BITs on FDI flows, taking account of the fact that states have self-selected into these treaties in the first place. We find that when controlling for this endogenous selection into the set of countries that have signed, the effect of BIT accession is indeed to increase the inflows of FDI for those countries most in need of an improved, more transparent policy environment.

TRANSPARENCY AND DEMOCRACY

The state has a crucial role in enabling and facilitating the private contracts that enable private exchange to occur. But simultaneously, the power to enforce contracts comes with the risk that state can use that power to transfer resources from one group to another. A successful state needs institutions to permit trade and investment, while at the same time must have adequate checks and balances to against expropriation by the government.

Consider a policymaker with a poor reputation, and/or poor institutions facing a potential foreign investor. The policy-maker understands that in order to make more efficient use of domestic resource endowments, foreign capital may be necessary. Such a policymaker faces two problems. The first is a time consistency problem: for after the FDI has arrived, there are ex post incentives to expropriate the investment and redistribute it domestically for the purposes of political survival. The second, is that the policy environment - the rules and regulations the government promulgates that govern the foreign firms' activity - can be unpredictable, adding to the risk of investment. Both the "hold-up" and the lack of a

predictable environment results in less FDI actually occurring, for the investor is reluctant to put capital at risk in such an environment (Drazen, 2000).

Transparency and democracy are two devices that can be used to reassure foreign investors that their assets are not at risk of expropriation or unfair treatment.

Transparency is a crucial determinant of the political and economic risk foreign investors face when making a foreign investment decision. Transparency, in the sense of economic agents are able to observe not only the policy choices made by governments in the past, but also to observe the processes by which changes in policy are made, is fundamental to the security an investor needs in the face of the hold-up problem. The ability of a state to build a reputation as a protector of foreign investors assets also relies on the ability of new investors to have monitored state behavior in the past. Transparency is also related to the variability of policy-making. If policy changes in unpredictable ways, unobservable *ex ante* to market agents, this policy uncertainty also acts as a brake on foreign investment. If the policymaking process is clear, transparent and predictable, these risks are reduced.

Institutions conducive to a hospitable investment climate, such as a functioning judiciary protecting the rule of law, and a well behaved and functioning bureaucracy, are likely to be transparent or operate in more transparent environments. After all, well-functioning institutions are ones in which the rules are clear, are seen to be objectively and consistently applied, are observable. An institution-poor environment is, conversely an opaque environment in which policy choices are unpredictable, capricious and inhospitable to investment. *Transparency, then is a proxy for both of the strength of the reputation held by a government, and the quality of its institutions.*

Democracy also works to reduce the risk of expropriation. If we focus on the electoral accountability element of most measures of democracy, the more accountable is the policymaker to the electorate, and the more the economy relies on foreign capital for the employment of domestic labor (as is the case in most developing countries), the more important is a reputation for protection rather than expropriation of foreign capital. Workers

in a capital poor country apply political pressure on their leaders to encourage foreign capital to invest domestically, thereby increasing their marginal product and hence their wage. The more accountable is the leader to the voters, most of whom are workers in developing states, the greater that political pressure is likely to be to protect the foreign capital. Hence democracy reduces the likelihood of unfair “takings” – reassuring capital owners that domestic labor will punish leaders at election time if they expropriate excessively.

Transparent and democratic domestic institutions that limit the unexpected variability of policy and are seen to enforce property rights are characteristic of richer nations. Such institutions not only allow the investor to reap the rewards from that investment, but help create a stable business environment in which more domestic and international investment can occur. Reductions in the risk associated with arbitrary expropriation and unpredictable policy shifts reduces the costs of investment and makes more economic activity feasible. Simply putting in place the domestic legal systems and institutional structures that treat all investment equally and in a transparent and democratic manner is a long and costly process that may not always be in the political interests of leaders accountable to special interests.

Leaders have considerably freer reign when it comes to acceding to an international treaty. These international international institutions provide opportunities to more credibly enforce property rights protections and to reduce the transaction risk associated with FDI. Bilateral investment treaties provide one such avenue, and guarantee a high standard of treatment, legal protection under international law, access to international dispute resolution, and limits and restrictions on the policy shifts that governments can undertake. BITs offer *precision of obligations* along a variety of dimensions crucial to lowering the transactions costs of foreign investment: they require a well-defined standard of treatment, the free transfer of funds and repatriation of capital and profits, *transparency* of national laws, equal treatment across investors, compensation for war and other civil disturbances. Most significantly, they offer dispute-settlement provisions that permit both investor and state

standing.¹

There is considerable debate in the literature as to whether FDI is enhanced by the presence of BITs. Early studies established a “conventional wisdom” in which BITs appeared to have little effect on FDI (Vandewelde, Aranda and Zimmy, 1998). Tobin and Rose-Ackerman (2005) followed the early studies, and confirmed the overall negative finding, studying US FDI flows to developing countries. They found little effect of BITs on FDI. Salacuse and Sullivan (2005) find that US BITs do increase FDI inflows (subsequently modified by Haftel (2008)); while Gallagher and Birch (2006) find the opposite result. These studies were all dyadic in design - studying the FDI flows between signatories of BITs; monadic studies - looking at total FDI flows into signatories with and without BITs, generated an equally confused picture. Tobin and Rose-Ackerman, using 5 year averages of FDI flows could find no significant effects of BITs; Neumayer and Spess (2005) on the other hand looking at large sample of 120 developing countries between 1970 and 200 found a positive and significant effect for the number of BITs on FDI flows. Yackee (2007) expands the Neumayer and Spess dataset, recodes BITs by weighting them by the size of the capital-exporting countries, and counts broader treaties as BITs if they include an investment related chapter. Yackee find no relationship between BITs and FDI. Finally, Buthe and Milner (2009) look at non-OECD countries’ inflows of FDI as a percentage of GDP, and find a positive correlation with the number of BITs that are signed. Recently, Jandiyhala, Henisz and Mansfield (2007) have a comprehensive study in which they find that BITs do affect FDI when the BIT is between a lesser developed and more developed pair, rather than between two poor or two rich

¹The innovation that has given the BITs their bite is that both investor-state and state-state disputes can be brought before an international tribunal for adjudication. Such bodies include the World Bank Group’s International Center for the Settlement of International Disputes (ICSID), or the International Chamber of Commerce (ICC). The United Nations Commission on International Trade Law (UNCITRAL) has a framework document that can govern arbitrations but does not operate an arbitration institution. The basis in international law for the enforcement of arbitral decisions is provided by the 1958 New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards. Aside from BITs, there are other instruments of international law that have some of these investment-protecting features, such as Trade and Investment Framework Agreements, Investment Guarantee Agreements, protections embedded in Preferential Trade Agreements, Friendship, Navigation and Commerce treaties and others (UNCTAD, 2000).

countries.

All these empirical approaches however suffer from the same problem of inference - the treatment of all countries in the sample as having the same propensity to sign BITs in the first place (or that propensity varies in a random fashion). In fact, some countries are more likely to sign these treaties, and the propensity to sign these treaties is correlated with the dependent variable (FDI flows), and hence the error term in these regressions. That is because states are self-selecting into the treatment, we have a problem of selection bias that has not been adequately addressed.²

In this paper we study the decision by a capital-importing country to sign a BIT. They will do so when they desire to import “better” institutions to protect from excessive state takings. Which countries will therefore sign BITs? Those with weak reputations and institutions: the opaque and non-transparent economies, *ex ante*. Hence we have a theory of selection into treatment. This of course has important consequences for the effects of BITS on FDI flows. Consider a state with very strong domestic institutions and/or a great reputation - a good investment climate: such state has little to gain from a BIT, and signing it will have little effect on FDI flows; on the other hand, a state with a poor investment climate will sign in order to import credibility - such a state will see a dramatic improvement in FDI inflows.

In what follows, we build a theoretical model of the decision to accede to a BIT, and explore the effect on the BIT on FDI flows in equilibrium. Using the theoretical foundations that establish the determinants of the BIT accession decision, we now have a theoretically sound basis for instrumenting the number of BITS in the FDI equation.

²Most of these authors do study only developing countries, avoiding the obvious pitfalls of mixing the behaviors of capital-importing with capital-exporting countries. Nevertheless, the motives of developing countries to sign BITs will vary to the degree which they have incentives to import the institutions in the first place.

A MODEL OF SELECTION IN BITS AND FDI LEVELS

We consider a game between a home firm and the host government, where the firm exports capital k from home to host. It employs labor l in host and produces x in host according to

$$x = x(k, l) = \min\{k, l\}$$

The firm then brings the x it produced back home, and uses x as an input into the production of y . It produces y at home according to

$$y = \frac{1}{2}(\ln s + \ln x)$$

where s might be thought of as skilled labor or human capital only available at home, specific to the firm and in inelastic supply at price σ . The firm is a price taker. We assume the world price of k is given and fixed, κ . That is capital that is exported to the host is employed on world markets at world price. Labor in the host country is paid w . Let the world price of y be 1.

The host government applies a tax t on every unit of capital that is employed at home. We model this in the “iceberg” form. That is for every k units of capital that is shipped to the host country, only $(1 - t)k$ are available for production. The firm must still pay the cost κ for each unit of capital it ships.

Profit for the firm: $\Pi = \frac{1}{2} \ln s + \frac{1}{2} \ln(\min\{(1 - t)k, l\}) - \kappa k - wl - \sigma s$. If we let K denote “after tax” effective capital, $K = (1 - t)k$ we can write this as: $\Pi = \frac{1}{2} \ln s + \frac{1}{2} \ln(\min\{K, l\}) - K \frac{\kappa}{(1 - t)} - wl - \sigma s$. Note that the firm must still pay the rental rate on the capital that is taxed away and no longer available for production. The higher is the tax on capital, the less capital is available for production, and therefore the less labor the firm will employ.

The host government receives political support from enhancing social welfare, and gains private benefits from taxing foreign capital. More precisely, government utility is $G = tk + awl$. The host government taxes the foreign capital after it has arrived, at rate t . The

host government also values the employment generated by the foreign investment. If we assume, to keep things simple, that the host country has no other production, wl is national income, and hence the second term is the political support valued by the host government as a function of national income.³

This political support function is analogous to government's objectives in similar political economy models of trade and investment in which the government has an incentive to raise revenue or political support from a particular policy action, be it a tariff that protects a domestic industry, and raises revenue, or as in this case, taxing imported capital⁴. This policy choice of course comes at some cost to social welfare or national income - in the trade case, the tariff reduces social welfare in a small open economy, and this has political costs; in the investment case, a higher tax on imported capital reduces the amount of domestic labor employed, and hence reduces social welfare, national income, and the attendant political support.

The national income term is weighted by a . We assume that a is private information - the host government knows a , but home firm does not. We denote the home firm's prior cdf over a as $\alpha(\cdot; d)$, with $\alpha' > 0$. High draws of a mean that the political influence exerted by the social welfare concerns is large relative to the political benefits of tax revenues. As a varies, tax rates jump around, as government tries to balance these two interests. The cdf of a is parameterized by the variable d , intended to capture the regime type of the country. A country with a higher value of d is "more democratic" and this implies that on average, the probability that a is large (a larger weight on social welfare) is higher. We model this by assuming that for $d' > d$, $\alpha(a; d') \leq \alpha(a; d)$ with strict inequality at some a . That is, we assume first-order stochastic dominance in d : more democratic states mean that the draw of higher value a 's is more likely than in less democratic states.

³We abstract away here from the owners of domestic capital. We keep things simple by assuming that there are no domestic capital owners represented in the government's objective function.

⁴See, for example Grossman and Helpman (1994), or Rosendorff (1996).

DOMESTIC INVESTOR PROTECTION

The general form of investor protection is a “promise” by the host government not to tax the home firm at any rate higher than p . This promise can be codified in the tax laws, it can be the rate at which domestic firms are taxed, or some other mechanism by which the foreign firms have coordinated their expectations about the reasonable tax rate likely to apply to their activities.

However the host state can renege on this promise and attempt to tax the foreign firm at a rate that is higher than p , something it might do if its interests in social welfare are sufficiently low (a is small).

The credibility of the promise is designated π . That is if the host government taxes the home firm at a rate t that is higher than p , with probability π , the host government will be required to, and will, reimburse the home firm for the excess takings. This probability, or the credibility of the promise, is assumed to be monotonic in the strength of the institutions that protect investment, and the reputation of the government in having complied with its previous promises. Repetitional strength and the quality of institutions are both positively related to the degree of transparency: not only does a host country require a transparent, and functioning domestic legal and regulatory system, a firm contemplating an investment will need to have some degree of confidence that a government’s promise can be relied upon. To know how credible this promise might be it will need to know how the government has behaved in the past, and this belief about the credibility of the promise is correlated with the degree of transparency of the regime. A more credible and transparent regime is denoted with higher values of π .

The Game with Domestic Investor Protection

If the host country breaks its promise and applies a tax rate larger than p , the home firm appeals to the relevant domestic institutions for arbitration. Let $\Pr(win|violation) = \pi$,

which is exogenous. If the plaintiff wins, the plaintiff pays the contracted tax rate under the agreement, p and not the violation tax rate t . That is we assume no problem of enforcement of an institutional finding. The sequence of moves is as follows:

1. Nature reveals the value of a to the host government. This is private to the host.
2. The home firm chooses k .
3. The host government chooses t .
4. If $t \leq p$, home firm employs local labor, production occurs and game ends.
5. If $t > p$, then foreign, host government is taken to court. Nature determines the outcome of the case with $\Pr(\text{win}|\text{violation}) = \pi$. If plaintiff wins, the tax rate reverts to p ; if not, the tax rate that is applied is t . The home firm then employs local labor l , production occurs and game ends.

Notice that the firm makes its investment decision (how much capital and labor to employ in the host country) before it knows what the government is going to do, with respect to the tax rate. Assume for the moment that the firm knows what the tax rate t will be, and takes that as given. From standard microeconomic principles, the firm's cost function is

$$C(w, \kappa, x) = x \left(\frac{\kappa}{(1-t)} + w \right) \quad (1)$$

Then the contingent demand for capital and labor in this fixed proportions production function is, by Shepard's lemma:

$$\begin{aligned} \tilde{k} &= \frac{x}{(1-t)} \\ \tilde{l} &= x \end{aligned}$$

where x is any given level of output. We also know that $\tilde{l} = \tilde{k}(1-t)$. These demand functions are contingent - this is the amount of capital and labor need to produce a given output x . If the tax rate goes up, the firm must ship more capital since taxes are reducing the amount of capital that can be put into production.

We begin by characterizing the equilibrium to the game with domestic property rights protection. The proof is in the appendix.

Proposition 1. *The equilibrium to the domestic protection game is $\tilde{t} = \begin{cases} 1 & \text{if } a < \frac{1}{w} \\ 0 & \text{if } a > \frac{1}{w} \end{cases}$ and $\tilde{x} = \frac{1}{2} \frac{1-\alpha+\pi\alpha}{(\kappa+w(1-\alpha+\pi\alpha))}$ where $\alpha = \alpha(\frac{1}{w}; d)$.*

The government observes its private shock a . If a is low enough, the government has little weight on the worker's welfare in its payoff function, and instead chooses to expropriate. It sets the tax rate at 1, above its promise of p . If instead, the political benefits of public welfare are large enough (a large), the government forgoes the benefits of expropriation for the public benefit of social welfare.

Notice that while π is the exogenous probability of property rights enforcement after expropriation, $\psi(\pi, d) = 1 - \alpha(\frac{1}{w}; d) + \pi\alpha(\frac{1}{w}; d)$ is the effective, equilibrium ex ante probability that property rights will be enforced. That is after taking account of government's incentive to expropriate. For the purposes of the home firm, this is the statistic that matters most: it tells them the likelihood that, in equilibrium, their investment will be protected. This statistic is a function of both the credibility of the domestic property rights environment π and the regime variable, d . We shall call $\psi(\pi, d)$ the *investment climate*.

STRENGTHENING THE DOMESTIC INVESTMENT CLIMATE

The investment climate improves with both transparency and democracy. More transparency improves the predictability of promises to protect property rights π , and in more democratic environments, (larger values of d), a is likely to be larger, making it less likely that expropriation occurs, since the government receives greater marginal benefits from social welfare. This means that in more democratic and more transparent environments, it is less likely that the government expropriates. A better investment climate is associated with lower expropriation, and consequently, more FDI.

Lemma 1. *FDI rises with improvements in the investment climate. That is $\frac{d\tilde{k}}{d\psi} > 0$.*

Proof. Recall from Proposition 1 that $\tilde{x} = \frac{1}{2} \frac{\psi}{(\kappa+w\psi)}$. Then $\frac{d\tilde{x}}{d\psi} = \frac{1}{2} \frac{\kappa}{(\kappa+w\psi)^2} > 0$. $\square$

We can decompose this improvement in the investment climate into the improvements in the credibility of the property rights promises and in enhanced democracy. We begin with property rights protection:

Lemma 2. *FDI rises with improvements in the credibility and transparency. That is $\frac{d\tilde{k}}{d\pi} > 0$.*

Proof. $\frac{d\tilde{x}}{d\pi} = \frac{d\tilde{x}}{d\psi} \frac{d\psi}{d\pi} > 0$ from Lemma 1 and that $\frac{d\psi}{d\pi} = \alpha \left(\frac{1}{w}; d \right) > 0$. Now a rise in $\tilde{x}$ requires a rise in $\tilde{k}$. Hence $\frac{d\tilde{k}}{d\pi} > 0$ □

A rise in the probability that any excessive takings will be reimbursed to the firm makes the firm more willing, ex ante, to commit capital for investment.

Suppose instead that the degree of democracy, d can be low or high. In low democracy states, the ex ante probability of expropriation is much higher, implying that FDI in the face of more likely expropriation will be lower. If instead the degree of democracy is high, making expropriation less likely, means that FDI will be higher.

Lemma 3. *FDI rises with democracy. That is $\frac{d\tilde{k}}{dd} > 0$.*

Proof. $\frac{d\tilde{x}}{dd} = \frac{d\tilde{x}}{d\psi} \frac{d\psi}{dd} > 0$ from Lemma 1 and that $\frac{d\psi}{dd} = \alpha_d (\pi - 1) > 0$. □

We can now pose the key question of the paper. When will more transparency matter most for FDI? In low democracy states, much is to be gained by enhancing transparency in terms of FDI. Firms will respond to more transparency in low democratic states by exporting more capital, increasing FDI. In high democracy states, the likelihood of expropriation is already low; more transparency will have only a modest effect on FDI flows.

Hence we get our first empirical prediction: *FDI is enhanced by transparency in non-democratic regimes; FDI is little affected by transparency in democratic regimes.*

Does Government always want a more reliable property rights regime?

In equilibrium, the government either taxes at rate zero, or taxes entirely, and it may or may not be able to hold onto the maximal taxes, depending on the outcome of the dispute. If it taxes at zero (which happens with probability $1 - \alpha$), G earns $aw\tilde{k}$; if it taxes entirely (which happens with probability α), with probability $1 - \pi$, G earns $\tilde{k}$, and with probability π , G earns $p\tilde{k} + aw\tilde{k}(1 - p)$. Putting this all together to get an expression for the government's ex ante expected utility (before the shock is revealed) we have

$$\begin{aligned} EG &= (1 - \alpha)\bar{a}w\tilde{k} + \alpha((1 - \pi)\tilde{k} + \pi(p\tilde{k} + \bar{a}w\tilde{k}(1 - p))) \\ &= \tilde{k}[\bar{a}w(1 - \alpha + \alpha\pi(1 - p)) + \alpha(1 - \pi + \pi p)] \end{aligned}$$

In the appendix we show that there exist optimal levels of π which maximize the government's expected utility. We denote this politically optimal level of institutional credibility (ergo, transparency) as π^* . In the appendix we establish conditions for which $0 < \pi^* < 1$.

We assume in what follows that π^* is NOT a choice variable for the government in the sense that it is structurally, or politically unable to unilaterally build the appropriate institutions with the optimal degree of credibility or transparency.

INTERNATIONAL TREATIES

Bilateral investment treaties signed between the host and home governments have some or all of the following characteristics:

1. BITs usually require fair and equitable treatment, most favored nation treatment (a commitment not to tax foreign investment at rates higher than firms from any other country) and national treatment (a commitment not to tax foreign investment at rates larger than applied to domestic firms).
2. The treaties permit resort to international arbitration in the instance of any dispute.

Investment dispute settlement is available, via impartial international arbitrators, and we assume that international arbitration is binding in that a finding by the arbitrator of a violation results in compliance by the host government.⁵

3. The treaties require “precision of treatment” - a well-defined and transparent standard of treatment and national laws.⁶

We assume that as before, the maximal tax rate (treated as given by national treatment or most favored nation treatment) is p . We assume that with a BIT, the probability of a finding by the (now international) arbitrator in the instance of a violation is π^{BIT} . That is $\Pr(win|violation) = \pi^{BIT}$, which is exogenous. If the plaintiff wins, the plaintiff pays the national treatment tax rate, p and not the violation tax rate t . We interpret the stronger credibility of the international arbitrator as a substitute for a less reliable, credible or transparent domestic investment climate.⁷

The sequence of moves in the BIT game is as follows:

1. Host government chooses whether or not to sign a BIT, with institutional strength π^{BIT} .
2. Nature reveals the value of a to the host government. This is private to the host.
3. The home firm chooses k .
4. The host government chooses t .
5. If $t \leq p$, home firm employs local labor, production occurs and game ends.
6. If $t > p$, then foreign, host government is taken to court. If they have signed a BIT, the court is the international arbitrator with strength ϕ ; if no BIT is in effect, the domestic courts are appealed to with credibility π .

⁵Note on the evidence that arbitral findings are usually complied with, such that enforcement concerns are second order.

⁶BITs do in fact vary somewhat in the degree to which all three of those dimensions are included and enforced. Nevertheless, for the purposes of generalizability, we assume that BITs are simply characterized with a relatively high degree of credibility. That is, their rulings add transparency, credibility and commitment to promises to protect property rights.

⁷Note that we do not require the enforceability of the international arbitrator’s rulings to be perfect. All that we require is that these rulings are more credible than the rulings of domestic court, and hence more likely to be followed.

7. Nature determines the outcome of the case. If plaintiff wins, the tax rate reverts to p ; if not, the tax rate that is applied is t . The home firm then employs local labor l , production occurs and game ends.

The structure of the game is identical with that of the previous section, with the addition of a first move by the host government where it decided whether to sign a BIT. From the analysis in the previous section the host will sign the BIT if the credibility of the international arbitrator π^{BIT} lies closer to its ideal institutional credibility π^* , than do domestic courts. It will also sign if the transparency of the regulatory environment is moved closer to the government's ideal point by signing a BIT.

Proposition 2. *A host country signs a BIT if and only if $|\pi^* - \pi| \geq |\pi^* - \pi^{BIT}|$.*

WHO SIGNS?

In what follows, let us make the reasonable assumption that international arbitration is the strongest institution, i.e. $\pi^* < \pi^{BIT} < 1$.

Signing a BIT raises the effective π . There are 4 cases to consider for any host government indexed by the credibility of their domestic institutions. In the states with the least transparent, credible regimes, these leaders have much to gain by importing the institutional quality of the international arbitrator, and are most likely to sign the BIT. In the next group, the domestic property rights regime and the transparency of the domestic investment environment is inadequate even in the eyes of the leader, but if the leader signs the BIT, the international institutional strength may be “too” strong in that it drives the credibility of the property rights enforcement regime and/or transparency to a level that is worse for the leader than the imperfect domestic regime. Hence the BIT is not signed, even though the leader would prefer a stronger property rights regime. In the next group, the domestic regime is stronger than that desired by the leader; hence there is no incentive to import an even stronger regime, so no BITs are signed. In the rare and unlikely case

which we shall ignore, when the leader prefers a weak regime, but the domestic regime is even stronger than the international courts, then BIT is signed in an attempt to weaken the authority of the domestic courts. However, the home, capital exporting country is unlikely to offer a BIT in this instance. So this case is moot. Therefore we have

$$\begin{aligned}
\text{If } \pi < 2\pi^* - \pi^{BIT} & \quad \text{then BIT} \\
\text{If } \pi \in [2\pi^* - \pi^{BIT}, \pi^*] & \quad \text{then no BIT} \\
\text{If } \pi > \pi^* & \quad \text{then no BIT}
\end{aligned}$$

Proposition 3. *BIT signing is monotonic in domestic the credibility of the domestic institutional regime.*

This can be seen in Figure 1 below. Low credibility regimes sign the BIT; the higher types don't.

BITS AND FDI FLOWS

We can now consider the effect of BITs on FDI flows. We can write

$$\tilde{x}_B(d) = \frac{1}{2} \frac{1 - \alpha\left(\frac{1}{w}; d\right) + (B\pi^{BIT} + (1 - B)\pi)\alpha\left(\frac{1}{w}; d\right)}{\left(\kappa + w(1 - \alpha\left(\frac{1}{w}; d\right) + (B\pi^{BIT} + (1 - B)\pi)\alpha\left(\frac{1}{w}; d\right))\right)}$$

and B is an indicator function as to whether a BIT is signed ($B = 1$) or not ($B = 0$). That is $\tilde{x}_1$ is the firm's output if a BIT is signed; $\tilde{x}_0$ if not. Notice that $\tilde{x}_1$ is not a function of π but that $\tilde{x}_0$ rises with π . We will write $\tilde{x}_0 = \tilde{x}_0(\pi, d)$. FDI flows are characterized by the following proposition:

Proposition 4.

$$\begin{aligned}
\text{If } \pi \leq 2\pi^{BIT} - \pi^* & \quad \text{then } \tilde{x} = \tilde{x}_1(d) \\
\text{If } \pi > 2\pi^{BIT} - \pi^* & \quad \text{then } \tilde{x} = \tilde{x}_0(\pi, d)
\end{aligned}$$

The diagram below, Figure 1, we plot the effects of BITS on FDI flows.

The effect of a BIT on FDI is conditioned by the degree of transparency and by the regime type (the degree of democracy variable, d). In high democracy countries, Lemma

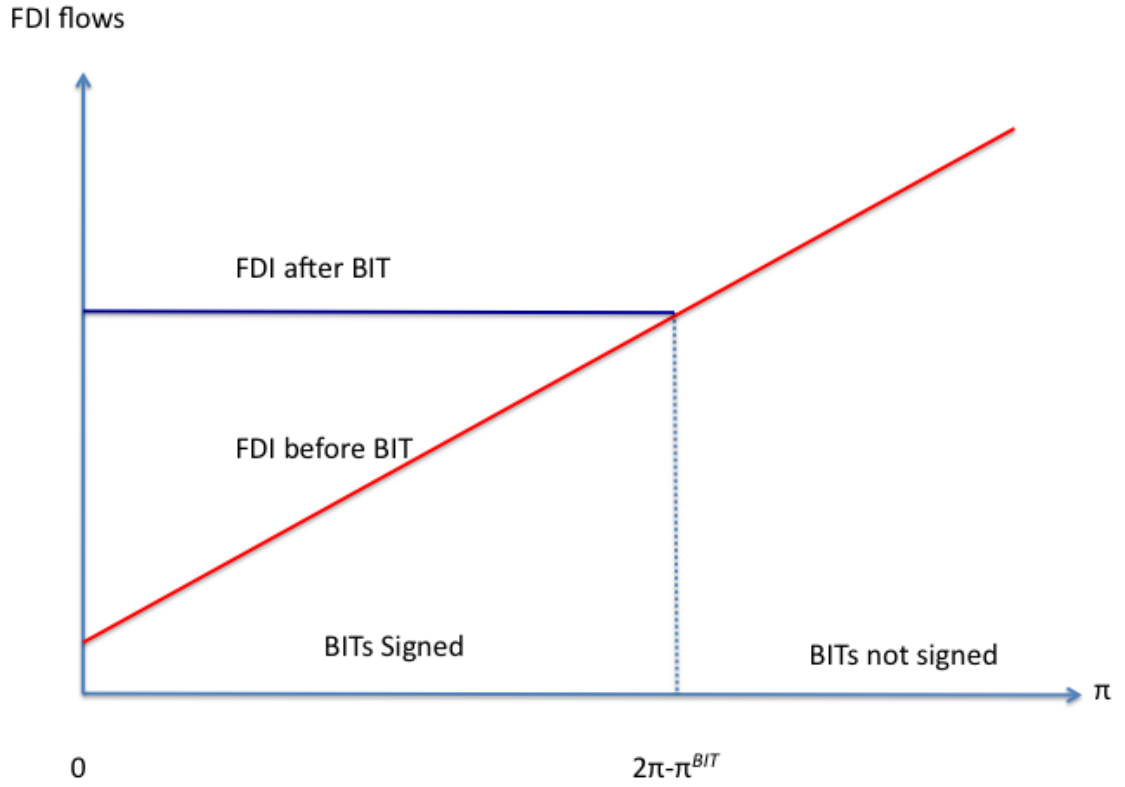


FIG. 1. **FDI and BITs by the Credibility of Domestic Property Rights Institutions**

1 establishes that the marginal effect of transparency will not be very large; *so the signing of a BIT by democracy is predicted to have very little effect on FDI*; in low democracy countries, the marginal effect of transparency will be much larger. *The signing of a BIT by a non-democracy has a significant effect in improving the credibility of the investment regime and will have a correspondingly large effect on FDI flows.*

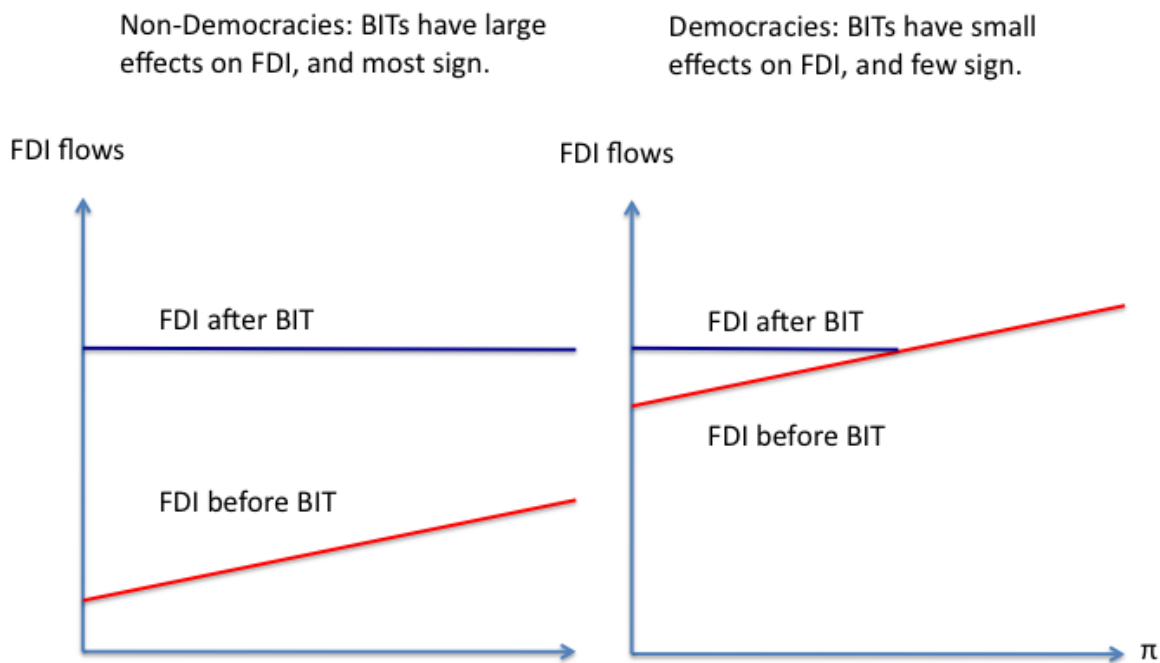


FIG. 2. FDI and BITs by the Credibility of Domestic Property Rights Institutions Partitioned by Democracy

EMPIRICAL CONSEQUENCES

One observation from Figure 1 is immediate: the presence of a BIT does not necessarily imply higher FDI flows. Consider two countries, one with a low π and one with a high value of π . FDI flows could be very similar. Hence any empirical strategy that compares countries that have signed BITs with ones that have not will be unlikely to find any effect of BITs on FDI flows. And if they do find an effect of BITs on FDI flows, all they may really be capturing is the effect of institutions on FDI, and not the effect of BITs. So the effect of

BITs on FDI must be conditioned by democracy - Figure 2 demonstrates this clearly.

Predictions

Our key theoretical results are divided into two parts: the determinants of the pattern of BIT signing, and the effects of BITS on FDI.

1. Who signs? The effect of democracy and transparency on BIT signing:
 - (a) BITs are signed by countries whose domestic institutions are opaque.
 - (b) BITs are signed by countries with lower democracy scores.
 - (c) Transparency has little (or even negative) effect on BIT signing among democracies.
 - (d) Among non-democracies, BITs are signed by those whose transparency is weakest.
2. Effect of BITS on FDI, conditioned by democracy and transparency:
 - (a) The signing of BITs by high democracy countries has very little effect on FDI.
 - (b) The signing of BITs by non-transparent non-democracies has a significant and positive effect on FDI flows.
 - (c) Within the class of autocracies, the marginal effect of BITS on FDI falls as transparency increases.
 - (d) Within the class of democracies, the marginal effect of BITS on FDI is relatively unaffected by transparency.

So institutions affect FDI levels directly and indirectly - democracy and transparency influence the decision to sign a BIT; and conditional on NOT signing, democracy and transparency affect FDI directly. If a state signs a BIT, domestic institutions matter less. BIT signing is therefore endogenous to at least two of the independent variables - democracy and transparency.

In what follows we put these predictions to an empirical test, taking account of the theoretically motivated problem of endogeneity.

EMPIRICAL INVESTIGATION

We consider 112 developing countries between the years of 1970 and 2004.⁸ The level of analysis is the country-year, and we measure FDI by the inward flow in US dollars. The count of BITs by country and year is from UNCTAD and a BIT is coded as present if it has entered into force by the year in question. The SIGN dummy is coded 1 if a country signed at least one BIT in any year.⁹

Measures of institutions across a variety of countries and across a broad enough period of time has its limitations. Of course POLITY exists for our measure of democracy, but measures of the credibility and transparency of the investment climate, and the strength of property rights protections are difficult to come by. Much of the existing data comes from surveys, but cross country surveys appear only after the 1990s, too late for the events we are describing here. The World Economic Forum's Global Competitiveness Report has comprehensive data for 130 countries, but only for the period 2008/2009. The more commonly used Transparency International's Corruption Perceptions Index, or the Law and Order measure from the consulting group, Political Risk Services have broader sets of years, but still rely on perceptions and suffer from the difficulty in making uniform comparisons across countries and cultures.

We instead use a new measure of transparency as our proxy for the credibility and strength of the domestic property rights regime. Hollyer, Rosendorff and Vreeland (2011*b*) (expanding on Hollyer, Rosendorff and Vreeland (2011*a*)) construct an index of the collection and dissemination of credible economic data by national statistical offices. They use a Bayesian

⁸In the instrumental variables section below, we are restricted by data availability for our instruments to the years 1990 to 2004.

⁹We abstract away from variation in BIT structure and design, and simply assume that any BIT enhances credibility.

item response theory model which treats transparency as a latent predictor of the reporting or non-reporting of data in the World Bank’s World Development Indicators (WDI) data series. The item response model is run on 172 items corresponding to the 172 variables relating to Economic Policy and Debt consistently collected by the WDI over time. Since the WDI obtains its data from other international agencies that, in turn, obtain their data from national statistical offices, this measure is a highly valid indicator of governments’ efforts to collect and disseminate economically relevant information. Moreover, because the WDI omits data considered ‘questionable’, the index reflects the collection and dissemination of credible information. The measure reports a single value of TRANSPARENCY for each country-year that reflects the missingness of data across all 172 WDI variables with minimal loss of information.

The benefits of this measure are in its scope and its aggregation. The measure is derived from a long-running data series, and consequently has far greater coverage than many commonly used alternatives. The index is also measured at the interval level – by construction a unit change in the scale has a consistent meaning regardless of value of the measurement. The measure is also an aggregate estimate of the ability and willingness of governments to make information about its regulatory environment, its policies and economic outcomes available to economic actors. Directly, therefore this measure gives us a broad panel of data points on the transparency of the investment climate, our key independent variable of interest. The transparency index is not highly correlated with polity - they have a correlation of about 24.5% suggesting that they capture different institutions.

We also use the DEMOCRACY dummy from the ACLP dataset (Przeworski et al., 2000) updated to 2009 (Cheibub, Gandhi and Vreeland, 2010) for partitioning the data to observe the difference in the effect of BITs in democracies and non-democracies along with polity. Political INSTABILITY is coded by Arthur Banks (Banks, 1979) measuring the level of instability and violence in each country.

Additionally, we control for economic variables such as GDP per capita (LN_{GDP}PC)

and (GDPPCGROWTH) which are common explanatory variables in FDI analysis. We also include the cumulative number of PTAs to which the host country is a signatory in any year (PTA(CUML)).¹⁰ Additionally we control for regional fixed effects and time trends of the dependent variables. The regions are those classified by the OECD. Time trend variables, noted by DEPENDENT VARIABLE NAME. LOWESS, are the lowess smoothed trends of the dependent variables across years. The sources, further description and basic descriptive statistics of the variables as well as the graphs of the time trend for number of BITs, likelihood of signing (SIGN) and the FDI inflow can be found in Appendix B.

BITs are signed by countries with lower democracy scores and more opaque regimes.

Table 1 explores the log of the odds that a country will sign at least one BIT in any particular year. The probit analysis looks at both democracy and transparency with some standard control variables - log of GDP per capita, GDP per capita growth, the cumulative number of preferential trade agreements signed by the country up until that year, and a lowess smoother that captures the secular trend in BIT signings over time (SIGN.LOWESS). Treatments (3) to (6) include region fixed effects.

The results show that the coefficients on Polity are systematically significant and negative, consistent with our predictions. The coefficients on transparency are negative but not consistently significant. So our prediction that less transparent polities are more likely to sign is only weakly supported here. The effect of having signed more PTAs enhances the probability of signing a BIT in any year, and there is a positive trend in BIT signings overall. We have strong support for prediction (1a), and mixed support for prediction (1b). Most importantly however, our prediction (1c) above says that transparency is less

¹⁰Tobin and Busch (2010) argue convincingly that a BIT between two states leads to a PTA between the same states; but that if the developing country has many BITs, especially with other wealthy states, any pair of states is less likely to sign a PTA. Causality here is running from a bilateral BIT to a PTA between the pair.

important for signing in democratic polities, and much more important for non-democracies (1d) is strongly supported. The variable $\text{POLITY} \times \text{TRANS}$ is the interaction term of polity and transparency, and is negative and significant in the full specification of the model. That is, transparency has no positive effect on BIT signing in democracies, but does in non-democracies (where the polity score is negative). So we have strong support for the interaction of transparency and democracy working in the direction supported by the theory.

Table 1. Probit Analysis: Likelihood of Signing BITs and Institutions

	1	2	3	4	5	6
POLITY	-0.037*** (0.00)		-0.025*** (0.01)		-0.027*** (0.01)	-0.015 (0.01)
TRANSPARENCY		-0.162*** (0.04)		-0.065 (0.05)	-0.003 (0.05)	0.016 (0.05)
$\text{POLITY} \times \text{TRANS}$						-0.039*** (0.01)
LN GDPPC	-0.181*** (0.03)	-0.100*** (0.03)	0.175*** (0.05)	0.336*** (0.05)	0.250*** (0.06)	0.299*** (0.07)
GDP PCGROWTH	0.016*** (0.00)	0.020*** (0.01)	0.012** (0.01)	0.005 (0.01)	0.014* (0.01)	0.015* (0.01)
PTA.(CUMUL)	0.152*** (0.02)	0.110*** (0.02)	0.162*** (0.03)	0.138*** (0.03)	0.140*** (0.04)	0.121*** (0.04)
SIGN.LOWESS	2.558*** (0.18)	1.951*** (0.27)	2.758*** (0.23)	2.423*** (0.34)	2.911*** (0.37)	3.168*** (0.39)
CONSTANT	-0.252 (0.23)	-0.238 (0.25)	-2.049*** (0.33)	-2.668*** (0.40)	-2.558*** (0.48)	-2.822*** (0.52)
REGION F.E.	no	no	yes	yes	yes	yes
N	2223	1579	2223	1579	1464	1464

Treatments (3) - (6) include region fixed effects. Variable $\text{POLITY} \times \text{TRANS}$ is the interaction of polity and transparency. *** 1% significance level. ** 5% significance level. * 10% significance level.

The Probit analysis above investigates the determinants of the likelihood that a state signs a BIT in a given year; we also explore the determinants of the cumulative number of BITs that have been signed by a state at a given point in time. Table 2 uses a Poisson

Table 2. Poisson Analysis: Number of BITs and Multiple Institutions

	1	2	3	4	5	6
POLITY	0.015*** (0.00)	-0.013*** (0.00)	-0.013*** (0.00)	0.017*** (0.00)	-0.010** (0.00)	-0.011** (0.00)
TRANSPARENCY	0.193*** (0.02)	0.136*** (0.03)	0.154*** (0.03)	0.191*** (0.02)	0.130*** (0.03)	0.147*** (0.03)
POLITY $\times$ TRANS				-0.005 (0.00)	-0.010** (0.00)	-0.009* (0.00)
INSTABILITY			-0.021** (0.01)			-0.020** (0.01)
LNGDPPC		0.293*** (0.03)	0.281*** (0.03)		0.293*** (0.03)	0.281*** (0.03)
GDPGROWTH		0.007* (0.00)	0.004 (0.00)		0.007* (0.00)	0.005 (0.00)
PTA(CUML)		0.050*** (0.02)	0.050*** (0.02)		0.053*** (0.02)	0.052*** (0.02)
BIT.LOWESS	0.297*** (0.01)	0.331*** (0.02)	0.328*** (0.02)	0.297*** (0.01)	0.332*** (0.02)	0.329*** (0.02)
REGION F.E	no	yes	yes	no	yes	yes
N	2338	1464	1463	2338	1464	1463

All models except for (1) and (4) include region fixed effects. Variable POLITY $\times$ TRANS is the interaction of polity and transparency. *** 1% significance level. ** 5% significance level. * 10% significance level.

model to explore the covariates of the count of BITs signed. Our theory is less clear on the effect of democracy and transparency on the number of BITs a country signs, although we might expect that if non-democratic, non-transparent states have the greater incentives to sign then they should probably sign more. Predictions 1c and 1d however suggests that we should find the effect of transparency to be much weaker in democracies than in non-democracies; so here we explore the interaction effect.

As in the case of likelihood of signing, polity is significant and negative across treatments - democracies have less of a need to sign BITs. Transparency here seems to increase the number of BITs signed, but important for our purposes is that the interaction term between polity and transparency index denoted as POLITY $\times$ TRANS is negative and sig-

nificant - transparency does not increase the number of BITs signed in democracies; in non-democracies it is the transparent states that sign more BITs. Once again, the effect of transparency is not to increase BIT signings in democracies, but certainly to do so in non-democracies. The results remain consistent with an addition of the Instability variable.

Table 3. Partitioned Sample: The Effect of Transparency on Likelihood of Signing.

Sample	dem	dem	non-dem	non-dem
TRANSPARENCY	-0.233** (0.11)	-0.185* (0.11)	0.010 (0.05)	0.050*** (0.05)
INSTABILITY		-0.114*** (0.02)		-0.033** (0.01)
LNGDPPC	0.348*** (0.12)	0.281** (0.12)	0.410*** (0.08)	0.422*** (0.08)
GDPPCGROWTH	0.039* (0.02)	0.043** (0.02)	-0.006 (0.01)	-0.008 (0.01)
PTA(CUML)	-0.107** (0.05)	-0.064 (0.06)	0.360*** (0.05)	0.339*** (0.05)
SIGN.LOWESS	6.789*** (0.88)	6.428*** (0.93)	0.567 (0.40)	0.607 (0.40)
CONSTANT	-4.391*** (0.93)	-3.861*** (0.96)	-2.888*** (0.57)	-2.868*** (0.58)
N	455	455	955	955

Partitioned according to the DEMOCRACY dummy from the ALCP dataset. All models control for region fixed effects. *** 1% significance level. ** 5% significance level. * 10% significance level.

We further explore this interaction between democracy and transparency and their effects of BIT signings by partitioning the data. Making use of the Alvarez et al. (2000) codings (ACLP), which was extended by Cheibub, Ghandi and Vreeland (2009), countries are designated as either democratic or not according to their propensity to call regular, competitive elections. In the next two tables, (Tables 3 and 4), we split the data along ACLP lines, and explore if there is a differential effect of transparency on BIT signings across regime types. The answer is clear - transparency in fact makes democracies less likely to sign, and trans-

Table 4. Partitioned Sample (with ACLP): The Effect of Transparency on Number Signed.

Sample	dem	dem	non-dem	non-dem
TRANSPARENCY	0.100 (0.07)	0.110 (0.07)	0.258*** (0.03)	0.284*** (0.03)
INSTABILITY		-0.018* (0.01)		-0.022*** (0.01)
LNGDPPC	0.514*** (0.07)	0.492*** (0.08)	0.243*** (0.03)	0.241*** (0.03)
GDPPCGROWTH	0.005 (0.01)	0.003 (0.01)	0.003 (0.00)	0.001 (0.00)
PTA(CUML)	-0.008 (0.03)	-0.004 (0.03)	0.107*** (0.02)	0.103*** (0.02)
BIT.LOWESS	0.546*** (0.04)	0.529*** (0.04)	0.192*** (0.03)	0.194*** (0.03)
CONSTANT	-3.992*** (0.41)	-3.814*** (0.44)	-1.596*** (0.22)	-1.560*** (0.22)
N	455	455	955	955

Partitioned according to the DEMOCRACY dummy from the ACLP dataset. All models control for region fixed effects. *** 1% significance level. ** 5% significance level. * 10% significance level.

parency makes non-democracies more likely to sign more BITS agreements. In Table 3, the coefficient on transparency is negative and significant in democracies, and significant (in one treatment) in non-democracies. In Table 4, the coefficient on transparency is positive in non-democracies, and not significant in democracies.¹¹

With respect to the predictions on the formation of BITS, the results above lend support to the importance of the interaction of democracy and transparency. We get consistent, modest support from predictions 1a through 1d. Recognize also that the number of BITS or the propensity to sign is endogenously determined by both transparency and democracy. In the next section we take this endogeneity seriously in attempting to infer the effect of BITS on FDI flows.

¹¹We find similar results (not presented) when we partition the data using a polity score of 5 or higher for democracies, and coding the rest as non-democracies.

Effect of BITs on FDI

Consider now the predictions about the determinants of FDI - that transparency and BITs other alone or interacted have little effect on FDI in democracies, but within autocracies, BITs will have an effect that falls off with transparency.

We begin our investigation of the effect of signing and the number of BITs signed on FDI inflow (% GDP) in the whole sample. Table 5 explores the effects of signing BITs, democracy and transparency on FDI inflow as a share of GDP. The log of GDP per capita, GDP per capita growth and a lowess smoother of FDI are taken as control variables.

Looking at Table 5, we see that signing a BIT has a strong and significant and positive effect on FDI inflow. Notice that the democracy variable is negative and significant; but democracy enters negatively in as a determinant of BITs (see the previous tables); so that if BITs are positively related to FDI, it is not surprising that the democracy score comes in negative. The interaction term of $\text{SIGN} \times \text{POLITY}$ is negative and not significant, suggesting that FDI is unaffected by BITs in democracies, consistent with our predictions.

Lending support to our findings, we also see that transparency has a negative and significant effect on FDI - suggesting the important role BITs play in alleviating the problems associated with a lack of transparency.

The interaction term between signing and transparency index is negative and significant. This suggests that for countries with a negative transparency index (which constitutes about the half of our sample) signing gives extra boost to the FDI inflow, and vice versa if the country has positive transparency index in the particular year. This suggests signing helps FDI by less in countries with better institutions.

Taking Endogeneity (More) Seriously

To deal with the fact that BITs are endogenous to democracy and transparency, and that both democracy and transparency are likely to be direct covariates of FDI, as are BITs,

Table 5. The Effect of Institutions and Signing BITs on FDI.

	1	2	3	4
SIGN	0.952*** (0.19)	0.636*** (0.21)	1.934*** (0.39)	1.465*** (0.39)
POLITY		-0.076*** (0.02)		-0.054*** (0.02)
SIGN $\times$ POLITY		-0.017 (0.02)		-0.002 (0.02)
TRANSPARENCY			-0.190 (0.18)	-0.470*** (0.15)
SIGN $\times$ TRANS			-1.288** (0.56)	-1.247** (0.57)
LNGDPPC		0.573*** (0.18)	0.463** (0.20)	0.511** (0.23)
GDPGROWTH		0.154*** (0.04)	0.209*** (0.06)	0.214*** (0.06)
FDI.LOWESS	0.946*** (0.10)	1.114*** (0.12)	0.799*** (0.12)	0.977*** (0.14)
CONSTANT	-0.524*** (0.18)	-3.484*** (1.15)	-3.179*** (1.15)	-3.555*** (1.37)
N	3212	2827	2172	2039

All models except for (1) control for region fixed effects. *** 1% significance level. ** 5% significance level. * 10% significance level.

we run instrumental variable regressions. An ideal instrumental variable would explain the BITs (and Signing) but not directly affect FDI inflow. Here, we use two instruments: the cumulative number of international educational, scientific and cultural conventions the state is party to (signed and ratified) and the cumulative number of PTAs that do NOT have investment clauses that the state is party to.

The cumulative number of non-economic conventions (UNESCO conventions) is taken from the list reported by the United Nations Educational, Scientific and Cultural Organization (UNESCO) on their website.¹² They report the list of conventions each state is party

¹²http://portal.unesco.org/en/ev.php-URL_ID=22249&URL_DO=DO_TOPIC&URL_SECTION=201.html, accessed December 15, 2011.

too and their date of signing and ratification.¹³

In order for the UNESCO conventions to be a suitable instrument, it should be the case that the UNESCO conventions are correlated with BITs, but not with FDI. In our view, willingness to sign a UNESCO convention indicates a latent preference for using international law and instruments to manage international interactions. Willingness to sign a UNESCO convention or many such conventions, is likely to be correlated with a willingness to sign a BIT, *ceteris paribus*. This preference for law-based solutions to international interactions is not necessarily correlated with actual or anticipated FDI flows.

The count of PTAs *without investment clauses* come from Baccini and Dür (2012). Bütthe and Milner (2011) show that the significant effect of PTAs on FDI that they found in earlier work (Bütthe and Milner, 2008) is driven by those PTAs with explicit investment protection clauses, and that those PTAs without such clauses appear to have little or no effect on FDI directly. PTA signing is closely related to BITs (see Tobin and Busch (2010)), but by excluding the PTAs with investment clauses, we limit the correlation between our instrument and FDI.

Using the cumulative number of UNESCO conventions signed by the host country, and the cumulative number of PTAs without investment clauses (PTA\IC) as instruments, we generate predicted values for both SIGN and BIT, which we then interact with the institutional variables of interest, POLITY and TRANSPARENCY.

We partition the data across democracies and non-democracies. In so doing we find support for our predictions. In the next two tables, Table 6 and Table 7, we maintain the two-stage least squares approach, and we interact Sign and BITS with transparency, suitably instrumented. In each table, the first two columns instrument BITs and Sign with the UNESCO instrument; in the second two columns, they are instrumented with the PTA without investment clause variable; in the last two columns we use both instruments.

¹³These include, for instance, The Protocol to the Convention for the Protection of Cultural Property in the Event of Armed Conflict, and Convention on Wetlands of International Importance Especially as Waterfowl Habitat.

Among democracies, BITs or Sign has no discernible effect on FDI flows, nor does their interaction with transparency. In non-democracies, BITS and Sign have a strong positive effects as predicted. Most importantly, however, the interaction of BITs and transparency, and the interaction of Sign and Transparency is negative and significant for autocracies: as these autocracies become more transparent, the marginal effect of BITs on FDI is declining. These are strong findings in support of the hypotheses.

Table 6. The Effect of Signing and BITs on FDI Inflow (2SLS) : Autocracy

	UNESCO	UNESCO	PTA\IC	PTA\IC	Both	Both
SIGN	21.6*** (8.34)		48.1** (22.2)		19.5*** (7.46)	
SIGN X TRANS	-9.660** (4.00)		-14.803* (7.75)		-8.677** (3.59)	
BITs		2.25** (0.93)		0.949** (0.48)		0.850* (0.47)
BITs X TRANS		-0.897** (0.38)		-0.807*** (0.31)		-0.782** (0.32)
TRANSPARENCY	5.23* (2.74)	0.483 (0.97)	9.21* (5.45)	0.451 (0.80)	4.53* (2.46)	0.380 (0.80)
LN GDPPC	1.60*** (0.61)	-0.489 (0.42)	3.19** (1.47)	-0.056 (0.28)	1.51*** (0.57)	-0.018 (0.28)
GDP PC GROWTH	0.218*** (0.06)	0.180*** (0.06)	0.160 (0.11)	0.222*** (0.04)	0.227*** (0.05)	0.226*** (0.04)
FDI.LOWESS	-0.527 (0.85)	-0.317 (0.80)	-2.98 (2.15)	0.795* (0.44)	-0.355 (0.77)	0.861** (0.43)
CONSTANT	-21.30*** (7.71)	1.345 (2.45)	-44.37** (19.87)	-0.777 (1.78)	-19.71*** (7.10)	-0.930 (1.76)
N	1167	1167	1167	1167	1167	1167

Likelihood of Signing and Number of BITs are instrumented by cumulative number of cultural conventions signed by the country (UNESCO), and cumulative numbers of PTAs without investment clauses signed since 1990 (PTA\IC). All models control for regional fixed effects and the lowess time trend for the dependent variables both in the first and the second stages. *** 1% significance level. ** 5% significance level. * 10% significance level.

The empirical evidence is clear: BITs increase FDI flows in non-transparent autocracies more than in transparent autocracies, or in any kind of democracy.

Table 7. The Effect of Signing and BITs on FDI Inflow (2SLS) : Democracy

	UNESCO	UNESCO	PTA\IC	PTA\IC	Both	Both
SIGN	1.89 (1.47)		1.69 (1.52)		3.81** (1.76)	
BITs		0.387 (0.32)		-0.128 (0.43)		0.082 (0.27)
SIGN X TRANS	0.180 (0.55)		0.187 (0.55)		0.121 (0.59)	
BIT X TRANS		-0.092 (0.15)		0.117 (0.19)		0.023 (0.13)
TRANSPARENCY	0.290 (0.41)	0.507* (0.30)	0.311 (0.41)	0.297 (0.31)	0.127 (0.46)	0.418 (0.27)
LNGDPPC	0.605*** (0.12)	0.296 (0.18)	0.593*** (0.12)	0.540** (0.23)	0.698*** (0.13)	0.445*** (0.16)
GDPpcGROWTH	0.016 (0.03)	0.002 (0.05)	0.020 (0.03)	0.064 (0.06)	-0.013 (0.04)	0.039 (0.04)
FDI.LOWESS	0.365 (0.29)	-0.091 (0.64)	0.412 (0.30)	0.910 (0.85)	0.012 (0.35)	0.512 (0.53)
CONSTANT	-4.63*** (1.02)	-1.19 (2.03)	-4.51*** (1.03)	-4.15 (2.63)	-5.52*** (1.14)	-2.99* (1.73)
N	749	749	749	749	749	749

Likelihood of Signing and Number of BITs are instrumented by cumulative number of cultural conventions signed by the country (UNESCO), and cumulative number of PTAs without investment clauses signed since 1990 (PTA\IC). All models control for regional fixed effects and the lowess time trend for the dependent variables both in the first and the second stages. *** 1% significance level. ** 5% significance level. * 10% significance level.

CONCLUSION

BITs are signed by countries that need them the most - countries with opaque domestic institutions and non-democratic political systems. The BIT is a simple device to replace a set of less efficient norms and institutions with a credible guarantee of a reduction in risk. Hence for these countries, the signing of BIT has positive effects on FDI flows.

Those countries that don't need better institutions, or for whom the international property rights enforcement regime is too politically costly, don't bother to sign. But their

investment climate is *ex ante* better, and FDI flows are not noticeably affected by the absence of a BIT. Hence for these states, any BITS that are signed do not have substantial effects on FDI flows.

A couple of caveats are in order. Firstly, we have treated BITs with a broad brush. In fact BITs do vary in the strength of their property rights protections, in the obligations firms have to exhaust local remedies and the like. There may indeed be some particular dimension of BIT design that is driving our findings rather than BITs writ large. This is of course, a matter for future research. Secondly, as with all instrumental variable estimations, the instruments that are used may fail to satisfy the exclusion restrictions. We think that the instruments chosen here are admissible and our results (both with respect to the incidence of signing and the emulative number of BITs) are robust to a variety of treatments.

This paper is also a reminder of the importance of taking endogeneity seriously, and of the benefit using theory to help deal with this endogeneity. After all, the decision to join a BIT is taken by member states and their leadership with an eye to the effect on FDI; moreover, the paper argues that the difficulties of instrumental regressions notwithstanding, coherent theory can guide the empirical investigation. Here our theory tells us to expect differing effects of BITs across regime types and within each regime type the effect of transparency differs as well.

Interestingly, it is the autocratic states that are more likely to sign BITs in the first place. In the context of the literature on international trade agreements this finding is surprising. Democracies have been shown to be more cooperative when it comes to signing preferential trade agreements, and are more likely to have lower barriers to trade than are autocracies (Mansfield, Milner and Rosendorff, 2000, 2002). Here the effect of regime type is the opposite of what has been established in that literature.

APPENDIX A: PROOF OF PROPOSITION 1

Proof. The firm chooses how much capital and labor to employ in the host country. Given t , from standard microeconomic principles, the firm's cost function is

$$C(w, \kappa, x) = x \left(\frac{\kappa}{(1-t)} + w \right) \quad (2)$$

By Shepard's lemma, the contingent demand for capital and labor are:

$$\begin{aligned} \tilde{k} &= \frac{x}{(1-t)} \\ \tilde{l} &= x \end{aligned}$$

where x is any given level of output, and $\tilde{l} = \tilde{k}(1-t)$. After the firm has allocated its capital, the government learns its value of a and can choose to apply a tax rate $t \leq p$ and receive the payoff in accord with complying with the initial commitment; or the government can hold-up the firm by applying a higher tax, and dragged to court for arbitration. The firm wins restitution for the excessive takings with probability π . Then

$$EG = \begin{cases} [t\tilde{k} + aw\tilde{l}] & \text{if } t \leq p \\ (1-\pi)[t\tilde{k} + aw\tilde{l}] + \pi[p\tilde{k} + aw\tilde{l}] & \text{if } t > p \end{cases}$$

Substituting $\tilde{l} = \tilde{k}(1-t)$:

$$EG = \begin{cases} [t\tilde{k} + aw\tilde{k}(1-t)] & \text{if } t \leq p \\ (1-\pi)[t\tilde{k} + aw\tilde{k}(1-t)] + \pi[p\tilde{k} + aw\tilde{k}(1-p)] & \text{if } t > p \end{cases}$$

Now solving for optimal t^* . If $t \leq p \in (0, 1)$:

$$\begin{aligned} EG_t &= \tilde{k} - aw\tilde{k} \\ \tilde{t} &= \begin{cases} 0 & \text{if } a > \frac{1}{w} \\ p & \text{if } a < \frac{1}{w} \end{cases} \end{aligned}$$

That is, for $t = 0 < p$ it must be that $a > \frac{1}{w}$. If $t > p$:

$$\begin{aligned}
EG &= (1 - \pi) [t\tilde{k} + aw\tilde{l}] + \pi[p\tilde{k} + aw\tilde{l}] \\
&= (1 - \pi) [t\tilde{k} + aw\tilde{k}(1 - t)] + \pi[p\tilde{k} + aw\tilde{k}(1 - p)] \\
EG_t &= (1 - \pi)[\tilde{k} - aw\tilde{k}] \\
\tilde{t} &= 1
\end{aligned}$$

which occurs when $a < \frac{1}{w}$. Since the expected returns to the government are larger at $t = 1$ than at $t = p$ when $a < \frac{1}{w}$, we have the equilibrium behavior of the government.

The expected profit of the firm is:

$$\begin{aligned}
E\Pi &= (1 - \alpha(\frac{1}{w}))[\frac{1}{2} \ln s + \frac{1}{2} \ln x - \kappa x - wx - \sigma s] \\
&\quad + \alpha(\frac{1}{w})[(1 - \pi)[-\kappa x] + \pi[\frac{1}{2} \ln s + \frac{1}{2} \ln x(1 - p) - \kappa x - wx - \sigma s]] \\
\frac{\partial \Pi}{\partial s} &= \psi \frac{1}{2} \frac{1}{s} - \sigma = 0 \\
\tilde{s} &= \frac{\psi}{2\sigma} \\
\frac{\partial \Pi}{\partial x} &= (\alpha - 1) \left(\kappa + w - \frac{1}{2x} \right) - \pi \alpha \left(\kappa + w - \frac{1}{2x} \right) + \alpha \kappa (\pi - 1) = 0 \\
\tilde{x} &= \frac{1}{2} \frac{1 - \alpha + \pi \alpha}{\kappa + w(1 - \alpha + \pi \alpha)}
\end{aligned}$$

□

APPENDIX B: VARIABLES, SUMMARY AND TIME TRENDS

Table 8. Variables

Variable	Description
BIT	The number of BITs signed by a country in a given year. The information on BITs is originally from the UNCTAD. Coded data was provided by Tobin and Busch (2010)
SIGN	The dummy indicating whether a country signed any BIT in a given year. 1 if $BIT > 0$ and 0 other wise.
FDI	The inward flow of FDI in 2005 US dollars as the % of total GDP for a given country. Available through UNCTAD.
Polity	Polity 2 variable from Polity IV dataset. Runs from $[-10, 10]$ higher the more democratic.
Transparency	A measure of transparency constructed by Hollyer, Rosendorff and Vreeland (2011).
Instability	Number of events indicating political instability and violence coded by Banks (1979) and as used by Bütthe and Milner (2008).
Democracy	Dummy coded as in ACLP dataset as in Alvarez et.al (2000) and extended by Cheibub, Ghandi and Vreeland (2009). 1 if categorized as democracy and 0 otherwise. Details of coding available from the Democracy and Dictatorship Revisited Codebook.
GDPpc	GDP per capita in 2000 U.S dollars. Source: World Development Indicator. It is logged in the estimation indicated by $\text{LN}\text{GDP}\text{PC}$.
GDPpcgrowth	GDP per capita growth rate in %. Source:World Development Indicators.
Region	15 geographic regions classified by the OECD coded as dummy variables.
BIT.lowess	Lowess smoothed time trend of BIT over years.
SIGN.lowess	Lowess smoothed time trend of SIGN dummy over years.
FDI.lowess.	Lowess smoothed time trend of FDI in flow over years.

Table 9. Summary statistics

Variable	Mean	Std. Dev.	Min.	Max.
BIT	1.881	3.323	0	19
Sign	0.488	0.5	0	1
Polity	-1.558	6.711	-10	10
Transparency	-0.137	1.624	-6.367	6.695
Instability	2.492	4.844	0	53
Democracy	0.293	0.455	0	1
GDPpc	1947	2964	62.24	30848
GDPpcGrowth	2.219	42.19	-50.05	2656

FIG. 3. Lowess Time Trend: Sign

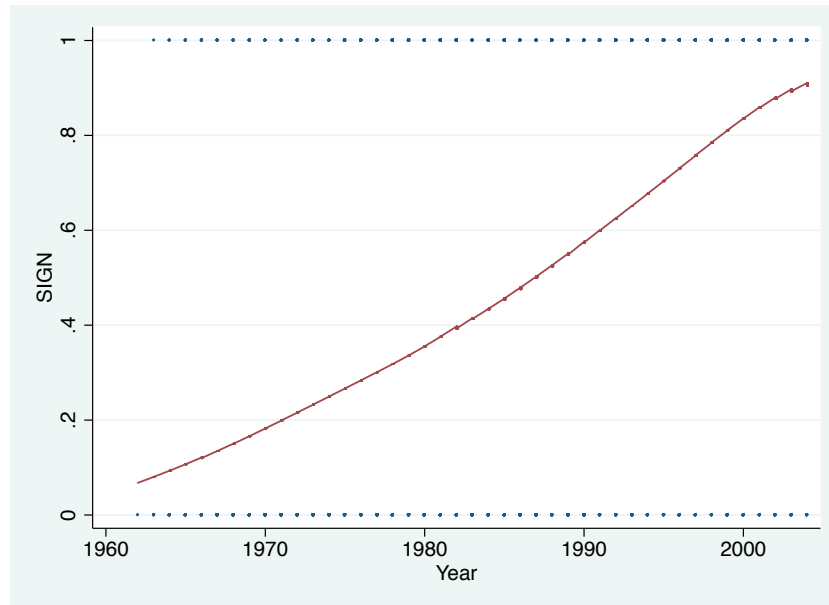


FIG. 4. Lowess Time Trend: Number of BITs signed

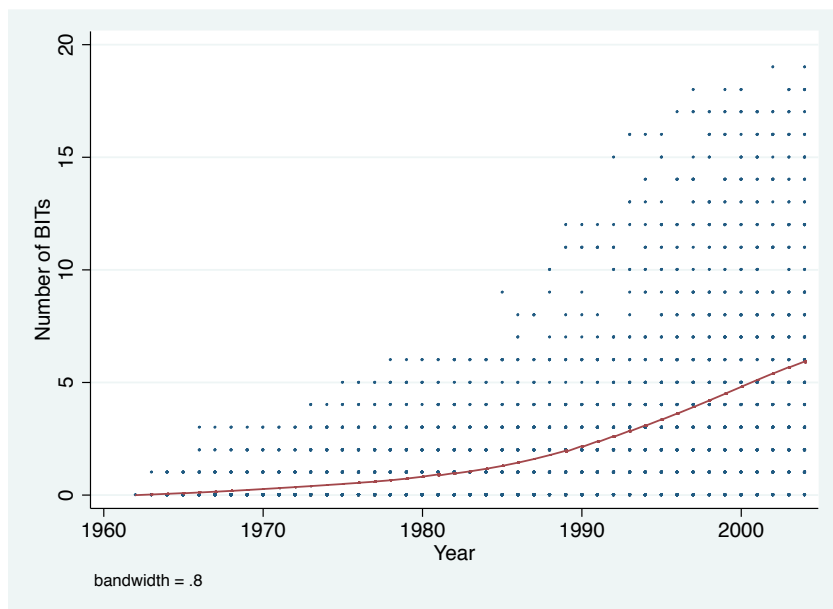
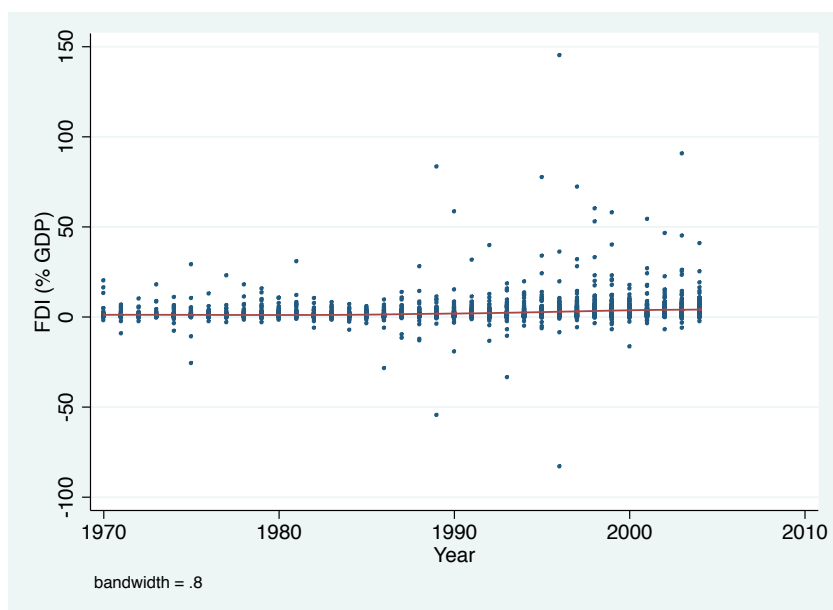


FIG. 5. Lowess Time Trend: FDI inflow (%GDP)



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