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Contracting with Whom? The Differential Effects of Investment Treaties on FDI

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ABSTRACT

Under what conditions can governments use international commitments such as Bilateral Investment Treaties (BITs) to attract foreign direct investment (FDI)? Although numerous studies have attempted to answer this question, none considers how investment treaties may have heterogeneous affects across industry. I argue BIT effect is strongest when the obsolescing bargaining problem between firms and governments is most protracted, namely, when FDI relies on strong contracts between firms and states. Using a time series cross-sectional data set of 114 developing countries from 1985 to 2011, I find BITs are associated with increases in infrastructure investment, an industry particularly reliant on the sanctity of government contracts, but not with total FDI inflows. Moreover, BITs with strong arbitration provisions display the strongest statistical effect on infrastructure investment, while BITs that do not provide investors with such protections are not associated with increased investment. My results have implications for both scholarship on the relationship between governments and multinational firms as well as for the study of international institutions more broadly. To properly ascertain the effects of international treaties and institutions, scholars should consider not just whether institutions constrain or inform—or matter at all—but also the extent to which the targets of institutions have heterogeneous responses to them.

KEYWORDS

Bilateral investment treaties; foreign direct investment; infrastructure; international political economy

Many scholars interested in the political economy of development have investigated the ways in which governments can induce foreign firms to invest directly in developing economies. Central to this discussion is an emphasis on the importance of reassuring international investors of the sanctity of their property rights. Bilateral investment treaties (BITs) are the primary extraterritorial legal devices through which states can strengthen the legal environment for foreign firms. These treaties are unique in that they often include preconsent to investor-state arbitration. A substantial number of studies have investigated the link between BITs and the ability of countries to attract foreign direct investment (FDI). Taken as a whole, the effectiveness of BITs in attracting FDI seems to be weak (Sauvant and Sachs 2009).

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The most robust finding in this literature is that BITs' ability to positively affect FDI flows is conditioned on a strong domestic institutional environment (Tobin and Rose-Ackerman 2011). This begs the question of whether BITs are merely redundant institutional constraints on host governments. Increasing evidence of the substantial litigation and reputational costs associated with investor-state arbitration may indicate that the costs of BITs outweigh their benefits (Allee and Peinhardt 2010, 2014; Poulsen and Aisbett 2013; Simmons 2014). As investor-state disputes proliferate, host countries and international organizations have increasingly called into question the legitimacy of the BIT regime (Buergenthal 2006; Green 2012; Kurtz 2012; UNCTAD 2013).

Growing evidence of the costs of BITs makes it particularly important to examine the conditions under which such treaties may induce investment. Most previous analysis has looked only at total FDI inflows. However, there is strong reason to believe that foreign firms should have heterogeneous responses to ratification of investment treaties. That is, the varying concerns of different industries are likely to affect their reaction to FDI in distinct ways. BITs are specifically designed to reassure foreign firms that are primarily concerned with the grabbing hand of the state, be it through direct expropriation or incremental regulatory changes designed to transfer rents from firms to governments. Foreign firms differ systematically in the extent to which their primary locational risks stem from the potential of government interference. Foreign investors in the infrastructure sector are uniquely dependent on governments honoring their contractual obligations. Infrastructure projects involve making substantial investment in fixed assets, and governments that have recently privatized infrastructure provision often retain the capacity to administer these projects. Moreover, due to public opinion that is often hostile to foreign investment in public infrastructure, governments face political incentives to (re)nationalize infrastructure. In contrast, foreign firms that invest in new factories for labor-intensive textile manufacturing do not contract with governments and are also less attractive targets for nationalization. Thus, different types of FDI flows may respond asymmetrically to BIT regimes. Three hypotheses follow from my theory. First, I anticipate that BITs will be associated with increases in infrastructure investment. Second, I expect that BITs will be less strongly associated with other types of FDI flows. Finally, BITs that strongly protect firm access to investor-state arbitration will have the largest effect on infrastructure investments.

Using panel data for 114 developing countries from 1985 to 2011, I investigate the effects of BITs on the ability of developing countries to attract FDI broadly as well as investment specifically in infrastructure. I find BITs that include access to investor-state arbitration mechanisms to be consistently and statistically significantly associated with increased investment in infrastructure

projects. Conversely, BITs are not good predictors of total FDI inflows. Further confirming the intuition that infrastructure investors are attracted to countries that have strong protections against state breach of contract, only treaties that include arbitration provisions have a statistically significant effect on infrastructure investments. These findings are consistent with political economy research that emphasizes industrial variation in the extent to which obsolescing bargaining theory applies to interactions between governments and foreign firms.

These findings have implications for the literature on firms, institutions, and development. First, they provide additional support for arguments that firms are attracted to locations that provide strong protections of property rights (North 1991) and that states can at least partially compensate for weak domestic institutions through extraterritorial commitments (Simmons and Hopkins 2005). Second, they reiterate calls to decompose investment flows to more fully consider systematic heterogeneity across firms. Others have emphasized the importance of firm entry (Lee, Biglaiser, and Staats 2014), firm nationality (Wellhausen 2015), and the relative liquidity of various components of firms' financial statements (Kerner and Lawrence 2013). Leveraging increasing access to FDI measured at the industrial level, I suggest that sectoral distinctions are also important in understanding firms' locational choices. Finally, my findings highlight the importance of considering how FDI's impact on development depends on the activities of investing firms. While rhetorical emphasis often rests on FDI in manufacturing, the largest sectoral component of FDI activity by size and growth is services. Infrastructure investment, which is a large component of services, may have small first-order effects on measures of interest such as job creation (Kirkegaard 2012; UNCTAD 2008). However, improvements in power, telecommunications, and transportation networks may have important second-order effects on productivity and growth.

Mitigating expropriation risk through BITs

What explains the great disparity in the capacity to obtain FDI among developing countries? Political economists who study patterns of global investment emphasize firms' concern over government breach of contract. Host countries that can credibly promise to uphold property rights and policy commitments are better able to attract foreign investors. Obsolescing bargaining dynamics are the central concern in this literature. Globally mobile firms have a bargaining advantage *ex ante* when governments are trying to attract investment but are much weaker after they have sunk immobile investments into the host economy. Host governments have incentives to renege on investment terms and to renegotiate agreements in their favor once FDI becomes "captured" (Vernon 1971). This time-inconsistency of bargaining strength incentivizes governments to make promises of business-friendly behavior they never

intend to keep in order to attract FDI and to then renege on those promises once firms have made their investments (Kobrin 1987).

Compounding the problem, foreign investment is made in an incomplete contracting environment (Williamson 1985). When a firm invests domestically, it has clear rights under domestic law that protect the fulfillment of contracts and the right to seek damages for breach of contract in the local court system. A foreign investor's rights in a host country's court system, however, are more precarious. Foreign firms often have little and varying legal recourse in domestic courts. Therefore, they are wary when investing internationally because they worry that host governments will expropriate firm assets without appropriate compensation. This fear is rooted in historical experiences; decolonization sparked a wave of expropriations without compensation as newly independent states nationalized foreign firms (Lipson 1985). Thus, the central problem that firms face when investing directly is that they desire assurances of protection given the uncertainty of an incomplete contracting environment, but any promises a host government makes *ex ante* are incredible due to the time-inconsistency of the relative bargaining strength of the firm and of the government.

Recent literature broadly argues that states with institutional arrangements that mitigate the government's ability to expropriate foreign assets either directly or through regulatory takings are better poised to attract FDI. Limited government and strong rule of law positively affect FDI inflows (Henisz 2002; Jensen 2006; Li and Resnick 2003). Democracies lower both investors' perceptions of expropriation risk and actual expropriation (Jensen, Biglaiser, Li, Malesky, Pinto, Pinto, and Staats 2012). The precise mechanism through which they do so remains contested, but scholars generally point to the importance of a constellation of institutions associated with democratic regimes.¹ Executive constraints make it difficult for a leader to hold captive investment hostage to outright expropriation as well as predatory tax rates and regulations (Jensen 2003, 2006; Jensen and McGillivray 2005; Li 2009). Large numbers of veto points across multiple branches of government make policy reversals difficult, which in turn makes the investment policy environment more predictable (Henisz 2000, 2002). However, too many veto points may render macroeconomic policy overly rigid in the face of adverse shocks (Zheng 2011). Fiscal federalism creates competitive pressure among local jurisdictions for scarce investment, which disincentives local governments from taxing investors highly (Jensen 2006; Weingast 1995). Strong respect for property rights and the rule of law provides multinationals with both a predictable legal environment and the tools necessary to defend their property rights against public and private expropriation attempts (Li 2006; Li and Resnick 2003).

¹These arguments stand in contrast to an earlier emphasis on autocratic governments' alliances with foreign capital (Evans and Gereffi 1982; O'Donnell 1988; Oneal 1994).

The process of creating stable, market-enhancing institutions is complex and takes time. Politicians, however, are motivated primarily by the short-term concerns of maintaining power from day to day and from election to election. Therefore, governments have incentives to pursue actions designed to quickly generate investment flows. Bilateral investment treaties (BITs), and treaties with similar provisions, are attempts to use international treaties to quickly reassure potential investors that host governments will honor foreign firms' property rights. These treaties are agreements between states, but they provide specific legal protection for firms. The first BITs originated in the late 1950s in response to the deterioration of colonial-era international investment law and were, for the most part, agreements between European ex-colonizers and the post-colonial south.² Typical terms include national treatment, a promise to not invoke performance requirements,³ the right to repatriate earnings, and the right to fair compensation in the event of expropriation. While these four terms represent the core legal provisions of this class of treaties, over time most BITs have come to include preconsent to a dispute settlement mechanism in which firms can request arbitration when they believe host governments have violated the terms of their investment treaty obligations. Increasingly, BITs tend to specify the International Centre for Settlement of Investment Disputes (ICSID) as the facilitator of dispute settlement. As of December 2014, firms have used BIT-provided jurisdiction to file 307 disputes through ICSID (ICSID 2015:10).

The proliferation of BITs worldwide, the continued lack of a multilateral treaty on investment, and the growing importance of FDI in the composition of international capital flows to developing countries have motivated an expanding body of research on both the conditions under which governments sign such treaties and the effect these legal instruments exercise on global investment patterns. As such, the BIT literature speaks to broader questions regarding the extent to which and through what mechanisms international institutions affect state behavior. Mechanisms matter for research design because signing a BIT may reassure foreign investors globally if such treaties operate as costly signals. Alternatively, these treaties may only increase investment among cosigners if these legal obligations function as instruments to establish credible commitments to investor-friendly policies.

Empirical results are mixed, which likely stems from a combination of three reasons: varied country and temporal samples, a lack of consistency among studies with respect to measurement of FDI, and inconsistent inclusion of control variables. When measuring flows monadically, Neumayer and Spess (2005) find that BITs increase FDI, while Yackee (2009) finds no evidence of this effect. Dyadic research designs also return contradictory findings. Several

²See Elkins, Guzman, and Simmons (2006) for an extended history of BIT diffusion.

³Performance requirements specify the percentage of local sources a firm must use in production.

studies find that BITs are unable to generate dyadic FDI flows (Hallward-Driemeir 2003; Yackee 2009). Tobin and Rose-Ackerman (2005) find no effect of US BITs on patterns of FDI flows from the United States to host countries. In contrast, Salacuse and Sullivan (2005) find that US BITs are statistically significantly associated with increased investment from the United States as well as increased FDI flows overall. Haftel (2010) reports similar findings, but only dyadically, and only from treaties that have been formally ratified. Egger and Pfaffermayr (2004) find that this positive association extends to BITs signed with OECD countries. Kerner (2009) argues that BITs operate through both signaling and commitment channels; he uses dyadic FDI data, measures of neighbors' treaty obligations, and instrumental variable regression to demonstrate statistically significant effects on the ability of host economies to attract investment from treaty partners as well as from investors more generally.

Increasingly, it appears as though the effect of investment treaties may be contingent on a host of factors related to domestic political institutions, investment form, and diplomatic realities. Tobin and Rose-Ackerman (2005, 2011) find that BITs only increase flows to hosts with low measures of domestic political risk. Desbordes and Vicard (2009) find that BITs increase FDI only when treaty signatories have a history of diplomatic tension. Kerner and Lawrence (2013) argue that BITs should only influence foreign firms' decisions over fixed-capital investment and find evidence that foreign affiliates of US firms increase investment in physical assets when they are covered by a BIT. Measuring treaty effect on FDI flows is further complicated by findings that acceding to international arbitration is indeed costly; being a defendant in an ICSID complaint substantially lowers FDI inflows (Allee and Peinhardt 2010).

In aggregate, the existing body of empirical analysis on the relationship between BITs and FDI suggests that any association is far from bluntly discernible. Identifying the contingent nature between such treaties and investment flows, or the lack of causal effect, is particularly important since the negative effects of BITs in the event of an arbitral claim are easier to find (Allee and Peinhardt 2010, 2014; Simmons 2014). Moreover, a growing backlash against investor-state arbitration has contributed to several countries derogating their investment treaty obligations and has led to politically powerful coalitions against further extension of investor arbitral privileges in a variety of trade and investment agreements. For instance, US Democrats have used investor arbitration clauses as a focal point for opposition against a Trans Pacific Trade and Investment Agreement (Sargent 2015). Left-leaning European coalitions have constructed political roadblocks to the Trans Atlantic Trade and Investment Agreement for similar reasons (Stearns 2015). South Africa has decided to terminate its 13 investment treaties with European states, citing displeasure with investor-state arbitration clauses

(Green 2012). The question of whether and under what conditions BITs attract foreign investment remains particularly relevant as political leaders, bureaucrats, and publics grapple with the question of whether the cost of arbitration agreements outweighs the rewards.

Heterogeneous exposure to expropriation risk

One reason why the relationship between investment treaties and investment flows remains unclear is that previous empirical exercises have, for the most part, assumed all potential investors should be equally motivated by legal obligations designed to strengthen the sanctity of government contracts. This assumption is problematic. Foreign firms face heterogeneous exposure to expropriation risk. This insight is not new; obsolescing bargaining theory specifies that firms that require location-specific inputs such as natural resources and firms that face high redeployment costs due to reliance on capital-intensive fixed assets are more susceptible to state breach of contract after investing (Cai and Treisman 2005; Frieden 1994; Kobrin 1987; Vernon 1971). Accordingly, investors should display distinct degrees of responsiveness to BITs, and variation should be systematically determined by industry-level characteristics that make firms more or less vulnerable to expropriating behavior of states.

Extending the logic of obsolescing bargaining dynamics, we can identify several firm- and industry-level characteristics that influence the severity of expropriation risk investors face. First, firms that sell goods and services to the local government are more exposed to expropriation risk than are other businesses that produce for local markets or exports. Reliance on governments as end users or venture partners renders firms uniquely vulnerable to governments' capacity and willingness to abide by the terms of payment in a timely fashion. Second, firms that engage in sectors that require sustained access to locationally specific resources are in a weaker *ex post* bargaining position vis-à-vis the state and are more vulnerable to expropriating behavior (Kobrin 1980, 1987). Third, investors that face high exit costs are more attractive targets of state expropriation. This is particularly true of business operations that require substantial fixed capital investments that cannot be withdrawn from a location (Henisz 2002; Henisz and Zelner 2001). For example, in March of 2015, the Portuguese and Brazilian company Oi PT Ventures was removed from management of the telecommunications network it had operated in conjunction with a state-owned firm in Cabo Verde for over 20 years ("Oi/PT 'Expelled'" 2015). Because its assets were immobile, it was unable to transfer its capital investments in reaction to the state's decision to expel it from the managing board. Multinationals that have valuable intellectual property may also be targets of forced technology transfer to state-owned enterprises or to domestic firms (Lee and Mansfield 1996).

Firms that operate in oligopolistic markets in which citizens are end users and payers for goods and services may also be subject to increased expropriation risk. This is because negative popular opinions toward such corporations may generate incentives for political leaders to increase their popular appeal by appearing to defend citizens against the perceived predatory behavior and pricing of such firms (Baker 2009; Murillo 2009; Post 2014).

In contrast, there are many sources of investment risk that BITs are unequipped to resolve. Investment treaties, and the access to international arbitration they usually afford investors, are specifically designed to reassure foreign firms that are primarily concerned with the grabbing hand of the state, be it through direct expropriation or incremental regulatory changes designed to transfer surplus from firms to governments. BITs are less able to mitigate other sources of investment risks such as discriminatory regulations and destabilizing macroeconomic policies enacted in response to adverse economic shocks⁴ and weak domestic corporate governance institutions that govern private party contracts.

Because BITs primarily strengthen investor-state contracts, we should expect such treaties to have heterogeneous effects across multinational activities with varying degrees of exposure to expropriation risk. More specifically, investment agreements are most effective at remedying risks associated with contracting directly with governments. Therefore, firms operating in business areas that rely on state contracts and who also display characteristics that limit *ex post* bargaining strength should be most likely to respond to the protections BITs provide. There are different ways to conceptualize the attributes of investment that may require close and sustained commercial cooperation with agents of the state. Lee et al. (2014) argue that different modes of investment entry differ systematically in the extent to which they assume expropriation risk. They contend that FDI through merger and acquisition (M&A) poses a greater political risk than does FDI through joint venture or greenfield investment for a number of reasons: M&A investments require firms to fully invest in a host country, make exit options particularly costly, and give firms little bargaining power with the state regarding tax incentives, regulatory changes, and contract renegotiations.

However, a distinction across industries may be more useful than a distinction across entry modes. It is unclear why a foreign firm that acquires a manufacturing plant that produces goods for export would face similar concerns about government breach of contract to a firm that acquires a power plant that produces electricity for distribution. ICSID data on the sectoral composition of cases under arbitration corroborates this intuition. As of December 2014, 62% of all cases filed through ICSID belonged to World Bank sector codes that

⁴Many BITs include national security carve-outs that allow host governments to retain a significant degree of policy flexibility during economic crises. For example, Argentina was able to successfully defend several of the discriminatory actions it took against US-based firms in the aftermath of its 1999 financial crisis. The legal basis of its defense rested on a security and public order carve-out in its BIT with the US (Blake 2013:804).

correspond with infrastructure: oil, gas, and mining; electric power and other energy; water sanitation and flood protection; transportation and roads; and information and communication (ICSID 2015:12). Only 13% of the cases came from the “other industry” classification, a catch-all category that includes manufacturing among other activities such as agricultural marketing and trade. Moreover, particularly through the 1990s, cross-border acquisitions of developing country assets’ were dominated by privatizations of public assets (Calderón, Loayza, and Servén 2002). Most of these privatizations occurred in infrastructure and finance, so measures of FDI through M&A are inadvertently measuring sectoral distinctions in FDI inflows.

While privatization has occurred in other industries, foreign firms investing in infrastructure projects may be particularly likely to consider access to arbitration when evaluating investment opportunities for several reasons. Participation in infrastructure entails many investment risks that are absent from or reduced in other sectors. The public utility and infrastructure sectors are highly regulated, creating an opening for creeping expropriation in the form of preventing service fee hikes and performance requirements (Henisz 2002; Kirkpatrick, Parker, and Zhang 2006). End users of infrastructure are citizens, who often exert pressure on governments to keep service rates under market value. These markets are often also monoposonic, with ownership ultimately transferring to the state at the end of lengthy “build, operate, transfer” agreements. Infrastructure participation requires detailed investor–state contracts that explicate the valuation of any government divestiture, private infrastructure development commitments, contracted utility rates, government guarantees, and the terms of transfer for any investment agreement that involves eventual full or partial ownership transfer from firm to state. Additionally, infrastructure is the quintessential fixed investment, making the obsolescing bargaining problem most pronounced (Henisz and Zelner 2001). When governments privatize infrastructure, they often retain the capacity to administer such enterprises, increasing the credibility of threats of expropriation and nationalization.

Compounding the expropriation threat, public opinion of infrastructure privatizations is often negative, leading to political pressure to nationalize services (Bandelj 2007; Rohrscheider and Whitefield 2004; Sinn 1997). Perhaps the most stark example of this is the Bolivian “water war” of 2000, in which a foreign joint venture, Aguas de Illimani, bought concession rights to water services in Cochabamba, Bolivia’s third-largest city. The concession carried with it performance requirements for infrastructure improvements; to fund improvements, Aguas de Illimani raised usage rates. The resulting violent protests led the company to divest and water services were renationalized.

Because of the distinct nature of infrastructure investment, foreign firms in this sector must contend with a constellation of issues that generate substantial expropriation risk. Infrastructure investors must trust the local government to honor the terms of lengthy and complex contracts. In the

absence of strong legal protections, infrastructure firms have little bargaining power once invested because their capital assets are locationally fixed and the oligopolistic structure of these markets means that there are few rival firms to which they could sell their business operations. Local political actors may also gain instrumental political power from engaging in public battles with these firms because high consumer costs and perceptions of underinvestment in infrastructure provision to disadvantaged communities generate popular protests against private providers of infrastructure services. The characteristics of infrastructure projects render both local and foreign investors vulnerable to governments' willingness to abide the terms of their initial contracts. However, foreign firms face unique challenges because they have fewer established relationships with government officials to resolve disputes (Post 2014), they are less central to enduring coalitions of local governance (Gehlbach and Keefer 2011, 2012; Jensen, Malesky, and Weymouth 2013), and they are more convenient targets of public protest against the perceived predatory practices of large corporations from rich countries.

Reliance on continued contracts with host country governments may render the investment protection provided in BITs, and the arbitration mechanisms such treaties often include, particularly useful to foreign infrastructure investors. Does this *ex post* usefulness influence *ex ante* firm locational decisions? There are reasons to suggest that infrastructure investors display characteristics that may make them more likely to have prior knowledge of relevant investment treaties than the average investor and that such firms are more likely to change their investment decisions based on this knowledge. Previous surveys of political risk insurers and general counsels from large US firms indicate that many firms are unaware or insensitive to the presence of and protections provided by BITs (Yackee 2011). However, investor knowledge of their legal standing under such treaties varies. Among arbitration practitioners there is a sense that firms that take the time, and pay the costs necessary, to perform substantial preinvestment due diligence are more likely to learn of BIT protections during this process.⁵ They are also more likely to cancel deals if the risk profile proves unacceptable; otherwise they would not pay the costs of discovery. This suggests that infrastructure investors may be more likely to be aware of and care about arbitration access because of their sustained and complex contracts with states as well because of the size of their deals, which will generally have more substantial due diligence processes. At the same time, and in cross-cutting ways, such investors will often be larger firms with repeated interactions with governments; they therefore may have access to other means of holding governments to the terms of their contracts. Previous rigorous case study analysis of private investment in water utilities in Argentina, however, suggests that foreign firms are often ill equipped to use

⁵Emma Lindsay, personal interview, September 15, 2015.

informal channels to influence governments during contract disputes and instead turn to legal recourse more quickly than do domestic firms (Post 2014). Therefore, it is likely that firms investing in infrastructure will be more familiar with the presence of investment treaties than other types of investors and will value their provisions.

This logic suggests three empirical predictions. First, infrastructure investors face strong and unique expropriation risk and should therefore respond favorably to the presence of BITs. Second, the mechanism through which these treaties reassure firms is by providing clear access to investor-state arbitration. Therefore, BITs with stronger arbitration provisions will be most capable of attracting infrastructure investment. Finally, foreign firms making investments in other industries face investment risks from other sources. The risk of expropriation is less central for them, and therefore BITs are less able to mitigate the types of risks that prevent them from investing in host economies:

H1: *BITs should be positively associated with private investment infrastructure.*

H2: *BITs with strong arbitration precommitments will be more strongly associated with infrastructure investments than BITs with weaker arbitration provisions.*

H3: *BITs should be less associated with broad measures of foreign direct investment.*

Operationalization

To test the hypotheses, I conduct pooled time series analysis of inward foreign direct investment for 114 middle-income and developing countries from 1985 to 2011.⁶ As do many analyses of the determinants of FDI, I restrict my sample to developing countries because multinational enterprise (MNE) activities among developed countries are qualitatively different from investment flows between developed and developing countries (Blonigen and Wang 2005). I also exclude countries with populations below 1 million, a standard practice when modeling FDI flows designed to eliminate small island entrepôts that generate high flows of FDI due to their status as a tax haven (Haftel 2010).

Outcome variables: Decomposed FDI data

Testing a theory of heterogeneous responses to BITs requires finding a reliable measure of disaggregated investment flows. Existing data make large, cross-national study of FDI at the industry level challenging. Industrial-level FDI inflows remain difficult to obtain for developing countries. The United States

⁶Included in my cases are OECD countries for which data are available as well: Chile, Mexico, and Turkey.

Bureau of Economic activity provides data on FDI outflows disaggregated by industry but with coverage limitations and substantial data redactions in sensitive industries. The OECD's industry-level FDI data also have limited reporting for developing countries. Instead, I consider whether BITs have a differential effect on infrastructure investment versus FDI more broadly. This approach has numerous advantages. First, as discussed earlier, existing research has established infrastructure investment as particularly susceptible to expropriating behavior (Frieden 1994; Henisz 2002). Second, FDI into infrastructure projects has been a major component of FDI flows since the wave of privatizations in the 1980s and has largely driven the majority of increases in private investment flows to developing countries since that time (Kirkpatrick et al. 2006; UNCTAD 2008). Third, high-quality data exist on private investment in infrastructure in developing countries.

The World Bank's Privatization Participation in Infrastructure (PPI) Database measures the monetary value of infrastructure deals in developing countries in which private actors have taken either at least a 25% participation stake or at least 5% equity ownership. The data set covers 139 countries from 1984 to 2014 and includes four broad categories of infrastructure: energy, telecommunications, transport, and water.⁷ Private participation is defined more broadly than a strict definition of privatization. Participation can include equity sales, greenfield investment, concessions, or management and lease contracts, as well as state divestitures.

The data set includes all private participations valued at over US\$1 million, not just participation from foreign investors. However, this measure is an appropriate proxy of foreign investment in infrastructure because foreign firms dominate private infrastructure investments in developing countries. Inspection of project-level details shows that over 80% of these investments were made by firms headquartered outside of the host economy (Kirkpatrick et al. 2006). This is consistent with other estimates of the degree to which foreign investors dominate privatization deals in emerging economies (Nellis 2000). Moreover, any inclusion of domestic investment in the data set would bias my results against my expectations since investment arbitration can only be invoked by firms whose home jurisdiction has ratified a BIT with the host country and therefore would not similarly protect domestic investors. Inspection of the regional distribution of infrastructure investment across entry type and subsector suggest that patterns of private investment in infrastructure projects are similar across regions. Additional descriptive statistics are reported in the online appendix. Infrastructure investment data are only available at the country level, rather than at the dyad level. The structure of the data thereby requires statistical analysis to be estimated

⁷The database limits coverage to sectors characterized by monopoly or oligopoly and therefore does not include more competitive sectors such as airlines and gas production.

at the country-year unit of analysis. A dyadic research design would be preferable because directed data could test whether the existence of a BIT between two countries increases FDI flows *within the treaty's dyad*. However, this is infeasible given the dearth of measures for decomposed investment flows. Moreover, the need for dyadic measures of investment flows for clean identification may be becoming less necessary as the investment treaty network becomes increasingly saturated (Saban, Bonomo, and Stier-Moses 2010). A multinational firm can establish standing for arbitration boards not only if there is a BIT between its country of origin and its host but also if its host country has ratified a BIT with another country in which it has established operations. In other words, BITs may generate large, extradyadic FDI flows when potential investors use their broader network of operations to secure treaty protections.

To compare the effect of BITs on investment in infrastructure with their influence on foreign investors more broadly, I also estimate models in which the outcome variable is annual net inward FDI flows expressed in constant 2005 US dollars.⁸ Because both of these measures of investment exhibit skew, I log transform them. While earlier empirical models of FDI determinants express FDI flows as a percentage of GDP (Büthe and Milner 2008; Jensen 2006; Neumayer and Spess 2005), this practice obscures the absolute value of FDI flows and also induces bias in coefficient estimates since most statistical models of FDI flows control for economic factors such as GDP per capita. Due to these estimation issues, it has become standard practice to use the log rather than the GDP weight of FDI flows (Kerner 2009; Tobin and Rose-Ackerman 2011). Log-transforming FDI flows has the added benefit of reducing the weight of observations with very high flows of FDI. This prevents heteroskedasticity in the error term. However, log transformation poses problems for negative numbers and zeros. To deal with these problems, I follow a standard practice of taking the natural log of the absolute value of FDI flows plus 1 and then multiply the result by -1 if the FDI flow was negative (Levey, Panizza, and Stein 2007; Tobin and Rose-Ackerman 2011).

Explanatory variables

Several methods of measuring BITs exist in the literature. In my main models, I choose to include treaties that meet three conditions: one party is a country that is a traditional capital exporter, the treaty is ratified, and it includes preconsent to investor-state arbitration.⁹ These measurement decisions reflect previous findings that ratified BITs that also guarantee access to international

⁸This measure comes from UNCTAD's FDI database.

⁹These capital exporters include: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Italy, Japan, the Netherlands, Norway, Spain, Sweden, Switzerland, the United Kingdom, and the United States. Source: Yackee (2008).

adjudication processes are best able to reassure potential investors (Haftel 2010; Tobin and Rose-Ackerman 2011; Yackee 2009). Restricting measurement of BITs to treaties that contain a historical capital exporter is defensible given the period of time my analysis covers; the share of FDI outflows attributable to developing countries remained below 10% until 2004 and only rose to about 25% in 2012, which is outside the temporal coverage of my analysis (UNCTAD 2015:6). However, in subsequent tests designed to probe the mechanisms through which BITs may affect investment flows, I also consider the effect of two alternative measures of BITs on investment. First, I consider the effect of *All BITs*, a measure of all investment treaties signed by country i in year t regardless of treaty strength or investor status of the contracting partner.¹⁰ Second, I explicitly test whether *Weak BITs*, treaties without strong arbitration provisions, are able to attract investment. The marginal benefit of BITs may decrease as the number of treaties signed increases. This is especially true if BITs operate as costly signals as well as credible commitments (Kerner 2009). To model the potentially nonlinear effect of BITs on investment flows, I also included a squared term of the BIT variable.

Control variables

I control for a variety of economic and political explanations generally thought to affect firms' decisions to directly invest in a country. First, I control for *Economic Development*,¹¹ measured by *GDP Per Capita* and *Market Potential*, measured by *GDP Growth*. *Population* may affect investment, as firms may prefer to invest in countries that have large labor pools and the potential for large domestic markets.¹² Firms may be more inclined to directly invest in states with a greater degree of *Trade Openness* measured as imports plus exports divided by GDP. In addition, firms may be averse to investing in countries experiencing economic hardship. I include a measure of *Inflation* to account for this possibility. We may also expect that countries highly endowed with geographically specific and valuable natural resources will attract FDI regardless of the domestic institutional context. Data on *Resource Dependence* displays substantial missingness in my sample, so I exclude this measure from the main models. In supplementary analysis, I find that my central results are robust to including this measure. Finally, firms may invest in economies where capital is locally scarce. Accordingly, I include a measure of *Domestic Savings/GDP*. Measures that exhibit skew are log transformed.¹³

¹⁰Source: Graham (2015).

¹¹All control variables come from the World Development Indicators database unless noted otherwise.

¹²Others proxy for skilled labor with *Tertiary Enrollment*. Including this variable constricts my sample size considerably, so I run models without this control. In the online appendix, I show that my central findings are robust to including this measure.

¹³These include: *Population*, *GDP per capita*, *Trade Openness*, and *Inflation*.

In terms of political control variables, much research has focused on the effect of domestic institutions on FDI flows.¹⁴ I consider the role of regime type through inclusion of *Polity 2* (Marshall and Jaggers 2002). To account for the role of executive constraints and veto points in reassuring investors, I include a measure of *Domestic Political Constraints* from Henisz's (2002) widely used construction that measures the number of independent branches of government that hold veto power over policy change, as well as the degree to which branches are aligned. Governments can use other mechanisms to reassure markets of their commitment to neoliberal economic policies. Accordingly, I control for the presence of preferential trade agreements (PTAs) (Bütthe and Milner 2008) and capital account openness (*KA Open*) (Karcher and Steinberg 2013).

It is also important to control for global trends in FDI and investment treaties, since both increased dramatically through the 1990s. Accordingly, I include a measure of World BITs and World FDI or World Infrastructure Investment to account for temporal patterns in investment treaties and flows. Descriptive statistics and a correlation matrix for all variables are available in the online appendix.

Estimation and results

My estimating equation is as follows:

$$\ln(FDI_{i,t}) = \alpha + \beta_1 * \ln(FDI_{i,t-1}) + \beta_2 * BIT_{i,t-1} + \beta_3 * BIT_{i,t-1}^2 + \beta_4 * Z_{i,t-1} + V_i + \varepsilon_{i,t}$$

where i indexes the host country, t the year, $BIT_{i,t-1}$ counts the number of BITs a host has signed with advanced industrialized countries in the previous year, $BIT_{i,t-1}^2$ models its nonlinear effect, $Z_{i,t-1}$ represents a vector of country-level control variables, and V_i represents country fixed effects. Main models are estimated with a lagged dependent variable and standard errors clustered by country. To test sensitivity of findings, I also estimate country- and year-fixed effects models, random-effects models with regional controls, feasible generalized least squares models with a panel specific autoregressive estimator AR(1), and a fixed effects model with Driscoll-Kraay standard errors. All main findings are robust to estimation technique.¹⁵ Table 1 reports the results for fixed effects and feasible generalized least squares models.

¹⁴Unlike some other empirical studies of BIT effects, I do not control for Political Risk, as measured by the Political Risk Services' International Country Risk Guide (ICRG). I choose to omit Political Risk in my analysis for logistical as well as theoretical concerns. First, the variable displays approximately 50% missingness in my sample. This creates estimation problems and unduly restricts my sample. Second, the ICRG's Political Risk index is a composite of many political factors, and one component of the index explicitly accounts for the presence of BITs. (Personal correspondence with ICRG staff, Thomas L. Gerken, December 4, 2012.) Thus, using this measure as a control unduly attributes correlation to Political Risk instead of BITs.

¹⁵Results provided in the online appendix.

Table 1. Determinants of Different Measures of Foreign Direct Investment.

	Model 1 In(FDI)	Model 2 In(FDI)	Model 3 In(Priv)	Model 4 In(Priv)
	FE	GLS	FE	GLS
Lagged FDI	0.3695** (0.0457)			
Lagged Priv			0.4579** (0.0391)	
Strong BITs	0.0517 (0.0749)	0.0857 (0.0900)	0.1448** (0.0528)	0.2708** (0.0619)
Strong BITs ²	-0.0041 (0.0529)	-0.0054 (0.0069)	-0.0099* (0.0040)	0.2708** (0.0055)
POLCON	-0.0831 (0.4065)	0.178 (0.4500)	0.5351+ (0.3223)	0.6149* (0.3112)
Polity	0.0224 (0.0163)	0.0509* (0.0210)	-0.0026 (0.0126)	0.0001 (0.0143)
In(Pop)	1.3809 (1.0623)	1.9080+ (1.1051)	1.7793** (0.6744)	1.8760** (0.7791)
In(GDP per capita)	-0.6598+ (0.3680)	-0.9505* (0.4469)	0.7459* (0.3284)	1.0080** (0.3040)
GDP Growth	0.0158 (0.0138)	0.0223* (0.0090)	0.0013 (0.0075)	-0.0057 (0.0063)
In(Trade)	0.4517 (0.3239)	0.6890* (0.2952)	0.4436* (0.1800)	0.3803+ (0.1964)
PTA	-0.0001 (0.0030)	-0.0020 (0.0028)	0.0010 (0.0018)	-0.0023 (0.0019)
KA Open	0.1262+ (0.0718)	0.2239** (0.0681)	0.1808** (0.0524)	0.2731** (0.0474)
In(Inflation)	-0.1315 (0.1826)	-0.1690 (0.1185)	-0.1196 (0.0833)	-0.1255 (0.0840)
Savings/GDP	0.0045 (0.0072)	0.0018 (0.0071)	-0.0055 (0.0047)	0.0001 (0.0048)
World BITs	0.0003 (0.0008)	0.0010 (0.0072)	-0.0015* (0.0007)	-0.0003 (0.0008)
In(World DV)	0.0016 (0.0013)	0.0012 (0.0009)	0.0038** (0.0012)	0.0059** (0.0012)
R2	.2859		.5322	
Within R2	.2872		.5802	
Between R2	.2898		.5373	
n	113	113	113	113
N	1994	1994	2027	2027

Note. + $p < .1$, * $p < .05$, ** $p < .01$; two-tailed tests. Standard errors in parentheses, clustered by country. All models include fixed country effects. Constants not reported.

Broadly, the findings presented provide confirmatory support for my central hypotheses. As Hypothesis 1 predicts, BITs are positively associated with total FDI and infrastructure investment inflows. However, BITs are only statistically significantly associated with increased infrastructure investment. Substantively, ratifying an additional BIT corresponds with an average 12% to 31% increase in infrastructure investment inflows. Also consistent with expectations, the marginal effect of BITs decreases with each additional treaty. The coefficient estimate for BITs² is consistently negative across all models and statistically significant, though substantively small, in models of infrastructure investment.

Combining these effects, an average country in the sample has 3.5 BITs in force (for example: Bangladesh 1989–1995, Cameroon 2004–2011, Honduras 1998–2000), which translates to an increase in infrastructure investment between 39% and 103.6% above a country with no strong investment treaties in force (for example: Central African Republic, China before 2004, Nicaragua until 1994). A country one standard deviation above the sample mean will have 7.8 BITs in force (for example: Bolivia 1997–2000, Indonesia 1997–2008, Oman 2005–2011) and about 48% to 127.3% more infrastructure investment than the average country. In contrast, and in support of Hypothesis 3, not only are the coefficient estimates for BITs in equations that model total FDI inflows much smaller, but estimates are highly uncertain and are not statistically significant.

In addition to the primary findings of my analysis, some other results bear mentioning. Most of these findings are broadly consistent with previously established empirical findings, which increases confidence that my models are correctly specified. First, domestic political variables affect investment flows. Consistent with Henisz (2002), domestic political constraints are positively and statistically significantly associated with increased infrastructure investment. A one standard deviation increase in POLCON above its sample mean is associated with an average 15% to 18% increase in private infrastructure investment. Conversely, models of total FDI flows show mixed effects of POLCON on flows and that democracy is positively associated with investment. As a whole, these results corroborate existing research that argues that limited government attracts foreign investors and that measurement issues make uncovering the precise mechanism elusive.

Features of the domestic market also display important effects on flows. Countries with larger populations attract more investment, and this relationship is consistently statistically significant for infrastructure investment. This suggests that infrastructure firms are attracted to locations with high baseline demand. Note that the large coefficient estimates for population reflect the fact that the population measure was log transformed. Substantively, a population increase of 1% is associated with an average increase in infrastructure investment between 1.78% and 1.88%. Wealthier developing countries attract more infrastructure investment, but total FDI inflows are associated with lower levels of development. These findings are consistent with expectations that infrastructure investment is market seeking, while other types of FDI inflows may be particularly interested in efficiency gains from relatively low wages. Economic growth is not a good predictor of investment flows. High levels of imports and exports are positively and usually statistically significantly associated with both infrastructure investments and total FDI flows, which may indicate that investors are attracted to countries that have broadly favorable policies toward open markets. Domestic savings rates are never statistically significantly associated with either type of investment flow. However, the negative coefficient

estimate for models of infrastructure investment suggests that private infrastructure investments are more likely when local capital cannot finance infrastructure expansion. The positive coefficient estimates for domestic savings in models of total FDI flows support arguments that FDI “crowds in” local capital.

Other government policies, as well as global trends, display mixed ability to predict investment flows. Contrary to other analyses, preferential trade agreements display little effect on investment flows in my sample. Capital account openness, in contrast, is consistently positively statistically significant. Firms prefer to locate in countries that allow profit repatriation. Global trends in investment treaties and flows are not good predictors of total FDI flows. However, increased world BITs are negatively associated with infrastructure investment, while increased infrastructure investment worldwide is positively associated with local inflows. These effects are substantively small. Further inspection suggests that the coefficient estimate for world BITs may function as a time trend; the effect softens in models that include year-fixed effects. The positive and statistically significant lagged dependent variables confirm the persistence of investment flows.

I also consider two further concerns. First, are my results driven by measurement choices that unduly restrict the universe of BITs that may affect investment decisions? To confirm that this is not the case, I reestimate Models 1 and 3 using a measure of BITs that includes all investment treaties signed by country i in time t . Models 5 and 6 in Table 2 report the output of these equations. For considerations of space, only fixed effects regressions are included; results are robust to alternate estimation approaches and are included in the online appendix. Additionally, I find that BITs continue to be unassociated with total FDI but positively and statistically significantly associated with infrastructure investment. Importantly, the substantive effect of *All BITs* on infrastructure flows is moderated somewhat in comparison with the effect of *Strong BITs*. The average in the sample country has approximately 10 BITs, and 30% to 58% more infrastructure investment than the average country with no BITs. A one standard deviation increase in *All BITs* is associated with an increase in infrastructure inflows between 39% and 75%.¹⁶ Thus, these effects are still large but less substantial than the effects of *Strong BITs*.

Second, what is the causal mechanism linking BITs to infrastructure investments? Hypothesis 2 predicts that BITs with preconsent to arbitration will be more likely to increase infrastructure investment than will weaker treaties because access to arbitration is particularly salient for firms that need to enter sustained contracts with governments. To test this hypothesis,

¹⁶These ranges are calculated from coefficient estimates of both lagged dependent variable with fixed-effects models and GLS models.

I reestimate Models 1 and 3 using a count of *Weak BITs*, treaties that do not include preconsent to investor-state arbitration. Models 6 and 8 in Table 2 report results. *Weak BITs* are not statistically significantly associated with aggregate FDI inflows or infrastructure investment. These findings, in conjunction with the statistical significance of *Strong BITs* on infrastructure investment, provide evidence that access to arbitration is driving the positive relationship between infrastructure investment and BITs.

Table 2. Testing Mechanisms - FDI, Privatization & Alternative Measures of BITs.

	Model 5 In(FDI)	Model 6 In(FDI)	Model 7 In(Priv)	Model 8 In(Priv)
Lagged FDI	0.3649** (0.0363)	0.3644** (0.0350)		
Lagged Priv			0.4509** (0.0379)	0.4870** (0.0356)
All BITs	0.0235 (0.0234)		0.0575** (0.0177)	
All BITs ²	-0.0004+ (0.0003)		-0.0007** (0.0002)	
Weak BITs		0.2248 (0.1485)		0.0365 (0.0899)
Weak BITs2		-0.0094 (0.0096)		0.0059 (0.0056)
POLCON	-0.1106 (0.3764)	-0.1298 (0.3832)	0.5605+ (0.2885)	0.5954* (0.2959)
Polity	0.0195 (0.0135)	0.0171 (0.0132)	0.0096 (0.0123)	0.0027 (0.0129)
In(Pop)	0.4607 (1.0330)	0.8504 (0.9185)	1.7020** (0.6056)	0.8808 (0.5961)
In(GDP per capita)	-0.6207 (0.4541)	-0.6486+ (90.3829)	0.4386+ (0.2604)	0.3427 (0.2489)
GDP Growth	0.0199+ (0.0110)	0.0194+ (0.0113)	0.0102 (0.0074)	0.0092 (0.0075)
In(Trade)	0.5830+ (0.3023)	0.5947+ (0.3155)	0.4245** (0.1605)	0.4325** (0.1635)
PTA	-0.0024 (0.0028)	-0.0037 (0.0031)	0.0033* (0.0016)	0.0003 (0.0018)
KA Open	0.1301* (0.0596)	0.1356* (0.0583)	0.1398** (0.0487)	0.1491** (0.0505)
In(Inflation)	-0.0064 (0.1923)	-0.0644 (0.1870)	-0.1224 (0.0853)	-0.1472+ (0.0776)
Savings/GDP	0.0157* (0.0073)	0.0153 (0.0071)	-0.0097* (0.0046)	-0.0083+ (0.0046)
World BITs	0.0003 (0.0002)	0.0010* (0.0046)	-0.0005* (0.0002)	0.0099** (0.0032)
In(World DV)	0.0017 (0.0011)	0.0017 (0.0011)	0.0039** (0.0013)	0.0009** (0.0008)
R2	.4205	.3711	.5848	.6710
Within R2	.3316	.3322	.6218	.6202
Between R2	.5392	.4020	.6013	.6926
n	114	114	114	114
N	2471	2471	2504	2504

Note. + $p < .1$, * $p < .05$, ** $p < .01$; two-tailed tests. Standard errors in parentheses, clustered by country. All models estimated as time series fixed effects. Constants not reported.

Sensitivity analysis and endogeneity concerns

In addition to the multiple estimation techniques I describe earlier, I perform a battery of supplementary analyses to confirm that results are robust to measurement and estimation choices.¹⁷ First, there are multiple widely used measures for democracy and for veto points. In particular, some argue a dichotomous measure for democracy is more appropriate than the index approach reflected in *Polity* (Cheibub, Gandhi, and Vreeland 2010). Stasavage and Keefer (2003) have an alternate veto points measure, *Checks*, that emphasizes the extent to which political institutions strengthen or weaken political agents' autonomy. I run a series of models that account for all possible combinations of measures for the concepts of democracy (*Polity* and *Dem*) and veto points (*POLCON* and *Checks*). My main results hold. Inspection of the underlying infrastructure investment data reveal that the vast majority of projects have foreign firm sponsors. However, three countries stand out as having a sizable number of domestically funded private infrastructure projects: Argentina, Brazil, and India. I rerun analyses excluding these countries and my results remain unchanged.

As others have pointed out, empirical investigation of the relationship between BITs and FDI may be impeded by an endogenous relationship. Governments that sign investment treaties may be fundamentally different from those that do not. Not accounting for this selection process may overestimate the positive effects of BITs if countries that sign such treaties are more likely to follow investment-friendly policies more generally (Haftel 2010). Conversely, it may underestimate the causal relationship between BITs and FDI if countries sign such treaties when their geographic, economic, and political attributes render them less attractive to investors in the absence of the treaty (Kerner 2009). I consider estimating instrumental variable regressions to account for problems of selection. I construct instruments in a similar fashion to Kerner (2009), instrumenting for country i 's BITs in force using two variables: a three-year moving average of the number of BITs other countries in i 's regional grouping have ratified and a three-year moving average of the number of BITs ratified by all countries $\neq i$. However, as Table 3 reports, postestimation tests indicate that BITs are exogenous to infrastructure investment as well as to total FDI inflows. Two staged least squares (2SLS) and GMM return tests of endogeneity that routinely fail to reject the null hypothesis that FDI and Infrastructure Privatization are exogenous to either *Strong BITs* or a count of all a country's signed BITs. In the 2SLS estimations, the Durbin χ^2 and Wu-Hausman F -test equivalents for robust VCE estimations have p values well above .05. The c statistics after the GMM estimations provide additional evidence that correlation in the error term is not problematic. Therefore, instrumental

¹⁷Results reported in the online appendix.

Table 3. Considering Endogeneity.

	Model 9 2SLS	Model 10 GMM	Model 11 2SLS	Model 12 GMM	Model 13 2SLS	Model 14 GMM	Model 15 2SLS	Model 16 GMM
Outcome Variable	In(FDI)	In(FDI)	In(FDI)	In(FDI)	In(Pri)	In(Pri)	In(Pri)	In(Pri)
BIT Measure	Strong	Strong	All	All	Strong	Strong	All	All
Wooldridge χ^2 <i>p</i> value	.1554	.1692	.4704	.4865	.6348	.6454	.8382	.8434
Robust regression F <i>p</i> value								
C statistic <i>p</i> value	.1835	.46252.4	.77107.1	.4890	.0650	.46962.8	.77358.5	.7804
F statistic								
Hansen's <i>J</i> <i>p</i> value	.0724	.0724	.2779	.2779	.3309	.3309	.0558	.0558

Note. All models instrument BITs with 3 Year Moving Average Regional BITs and 3 Year Moving Average World BITs.

techniques are both inefficient and inappropriate; there is no evidence in this sample that the statistical relationship between BITs and investment flows is driven by an endogenous relationship or by omitted variable bias.

Conclusion

Previous research on the effect of BITs on FDI flows has assumed that all investors face similar sources of investment risk and that the sanctity of investor-state contracts is of primary concern to potential foreign investors. I build on insights from a rich literature on obsolescing bargaining to anticipate which types of foreign firms will be most concerned with the sanctity of investor-state contracts. Investors in sectors that face particularly high redeployment costs, that rely on government contracts, that are subject to close regulatory scrutiny, and that may be politically salient targets for domestic protest will need greater reassurance that their private property rights will be respected. These firms will view investment treaties with strong arbitration clauses as helpful instruments for mitigating the primary source of their investment risk. Investors engaged in activities that require less fixed capital, rely primarily on private party contracts, and are less heavily regulated will face less expropriation risk and therefore will be less responsive to investment treaties designed to commit governments to honoring the private property rights of foreign investors.

Using data on aggregate FDI inflows as well as private participation in infrastructure, I find robust support for the key contention that BITs reassure some investors but not others. BITs with strong arbitration provisions are statistically significantly associated with greater inflows of infrastructure investment. Additionally, BITs that include preconsent to investor-state international arbitration are better able to attract infrastructure investment than treaties that do not include such clauses. In contrast, there is little evidence that BITs attract foreign investors more broadly. These results are robust to inclusion of a broad range of economic conditions, domestic political institutions, and economic policies that are generally thought to affect an economy's ability to attract foreign investment. They are also robust to multiple estimation techniques and a variety of sensitivity analyses designed to ensure that results are not driven by temporal or country-level anomalies.

How should we interpret these findings, and why do they matter? Most proximate to FDI policy implications, my findings suggest that governments should not expect BITs to directly increase the type of FDI flows that are generally considered to be most important to economic growth. BITs are best equipped to increase FDI into activities that require a strong contract between governments and investors, such as infrastructure and utility service privatization. BITs, however, do not ameliorate investment risks related to private commercial contracts and are thus less able to overcome uncertainties

that matter most to other foreign investors, such as manufacturers. In other words, BITs are less helpful for attracting the types of investment that have the most potential for generating employment, alleviating foreign exchange and balance of payment pressures, transferring technology to local firms, and integrating local suppliers into global value chains. This finding is particularly damning of BITs' ability to have positive effects on development, since governments are less likely to pursue meaningful domestic institutional reform after ratifying a BIT (Ginsburg 2005).

While BITs may not have strong first-order effects on FDI that integrates local economies into global value chains, they may have more nuanced and long-term positive effects on development. Local and foreign firms alike often complain that a major impediment to growth is underdeveloped infrastructure (World Bank 2015). Service sector FDI, and specifically foreign investment in infrastructure, is associated with increasing productivity of locally operating firms (Kirkegaard 2012; UNCTAD 2008). Multinationals are more likely to invest in countries with better infrastructure (Loree and Guisinger 1995). More analysis is needed to explore the long-term relationship among BITs, increased foreign investment in infrastructure, and local firm productivity. The important point here is that the potentially positive effect of BITs on development may manifest diffusely through second-order effects on productivity.

More broadly, the differential effects on firm behavior that BITs display have wider implications for the study of institutional effects in international relations. A growing literature, spurred in part by greater access to firm-level data, continues to break apart the black box of the firm. The new-new trade literature emphasizes the importance of firm heterogeneity over preferences toward trade openness and regulation and that firm characteristics systematically explain these variations in firms' policy preferences (Melitz 2003). My findings suggest that firms display variation not just in what types of economic policies they lobby for but also in how they respond to international treaties designed to benefit them. Future exploration of the effectiveness of international treaties and institutions on spurring development should consider more carefully which kinds of firms are poised to benefit from international law designed to constrain the expropriation power of the state.

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