NATIONAL INSTITUTE OF ECONOMIC AND SOCIAL RESEARCH

FOREIGN INVESTMENT AND SHARED SOVEREIGNTY

Dr Angus Armstrong[1]
Julian Winkler[2]

[1]NIESR, Senior Fellow "ESRC UK in a Changing Europe"

[2]NIESR

NIESR Discussion Paper No. 475

Date: 3 July 2017

National Institute of Economic and Social Research

About the National Institute of Economic and Social Research

The National Institute of Economic and Social Research is Britain's longest established independent research institute, founded in 1938. The vision of our founders was to carry out research to improve understanding of the economic and social forces that affect people's lives, and the ways in which policy can bring about change. Seventy-five years later, this remains central to NIESR's ethos. We continue to apply our expertise in both quantitative and qualitative methods and our understanding of economic and social issues to current debates and to influence policy. The Institute is independent of all party political interests.

National Institute of Economic and Social Research
2 Dean Trench St
London SW1P 3HE
T: +44 (0)20 7222 7665
E: enquiries@niesr.ac.uk
niesr.ac.uk
Registered charity no. 306083

This paper was first published in July 2017

Foreign Investment and Shared Sovereignty

Dr Angus Armstrong and Julian Winkler

Abstract

This study investigates how the legal provisions contained in Bilateral Investment Treaties (BITs) affect foreign direct investment inflows in OECD countries. This stands in contrast to the existing literature on two counts: first, we examine separate investor protection provisions contained in BITs; and second we cover OECD economies only. We also take account of the existence of investment clauses in Preferential Trade Agreements. Additional attention is paid to the role of trade in the gravity model, estimated using a Poisson Pseudo Maximum Likelihood estimator. We find that it is the inclusion of Investor State Dispute Settlement (ISDS) provisions contained within BITs that matter most for foreign direct investment flows. In particular, the interaction of restrictive provisions contained in ISDS matters most for investment inflows. Our empirical analysis shows that BITs with ISDS provisions with both binding rules and a wide coverage for claims may increase investment flows by 73%. We believe that this is the first study to show the importance of ISDS provisions for direct investment inflows in advanced economies. However, the inclusion restrictive provisions can be interpreted as ceding sovereign control, making them politically controversial.

Contact details

Dr Angus Armstrong (a.armstrong@niesr.ac.uk), National Institute of Economic and Social Research, 2 Dean Trench Street, London SW1P 3HE

1. Introduction

Bilateral Investment Treaties (BITs) are the natural domain of international trade lawyers. Yet their potential impact on services trade and limits on sovereign control suggest that they will raise important trade-offs in future UK trade negotiations.

How we trade services differs to how we trade goods because most services are consumed at the point of production. This requires a commercial presence in foreign countries to export a significant share of our services. Of course, investing overseas carries political, regulatory and legal risks in addition to the usual economic risks. BITs are international treaties that serve to protect investors in foreign countries against policies of the sovereign that might damage the investor's investment position. To enforce investors rights, many BITs include Investor State Dispute Settlement (ISDS) provisions which commit the host sovereign state to certain legal procedures. The most common form of protection is where a supranational court, such as the International Centre for Settlement of Investment Disputes (ICSID), adjudicates on investors' claims.

Foreign direct investment (FDI) is particularly important to the UK. We are the third largest foreign direct investor and recipient in the world (behind the US and China), and the rest of the EU is our largest investment partner. Most of the UK's foreign direct investment flows are associated with the services sector.[1] The EU has the exclusive competency for enforcing investment protection on behalf of all Member States. After leaving the EU, the UK will have to decide whether to enter into a Preferential Trade Agreement (PTA) with the EU and other countries which may contain investment provisions. The UK may also seek to augment its PTAs with BITs and even ISDS provisions. However, popular opinion often sees ISDS as conceding sovereignty as they involve transferring power from a national court to an international court (as is the case with the European Court of Justice). The opposite perspective, often held by lawyers in the field, emphasizes the rights conferred to the investor, in terms of obtaining legal recourse in an overseas country.

This study looks at whether BITs, in particular specific ISDS provisions, have a significant impact on direct investment flows in OECD countries. The existing literature on causal links between such BITs and FDI considers whether the concession of sovereignty is worth paying for greater investment in the context of developing countries. Such countries often have unstable political regimes and so choose to bind themselves to a third party court via a BIT to reassure foreign investors. However, it is difficult to comment on the literature's conclusions, since their findings are often contradictory. Furthermore, the

[1] See ONS statistic Bulletin: Foreign direct investment involving UK companies 2015 for data https://www.ons.gov.uk/economy/nationalaccounts/balanceofpayments/bulletins/foreigndirectinvestmentinvolvingukcompanies/2015#net-fdi-positions-by-geography-component-and-industry

relevance of such treaties for advanced economies, in which public outcry against a loss of sovereignty to foreign powers has been particularly vocal, is disregarded.

Moreover, the literature on FDI itself throws into question large parts of the basic understanding of investment flows; FDI may be more interdependent on trade than acknowledged in investment gravity models that feature in the literature. Antràs and Yeaple (2013) give a detailed overview of how FDI, in its various forms, depends on a country's ability to produce and trade. A distinction is drawn between market-seeking FDI, by which foreign subsidiaries sell their parent firm's goods abroad, and efficiency-seeking FDI, by which foreign subsidiaries produce parts and components ultimately traded back to the parent firm for final assembly.

In this paper we examine the link between BITs and FDI in OECD countries. We use an augmented gravity model to assess the importance of BITs with various ISDS provisions on bilateral FDI flows while taking account of bilateral trade flows of goods. The results suggest that BITs between OECD countries are effective only when they have a combination of strict ISDS provisions. BITs have a statistically significant impact on investment flows when combined with ISDS where the coverage of investors' claims goes beyond the treaty and extends to any investment dispute, and the interpretation of the treaty rules is binding. The result holds even for pairs of countries with a preferential trade agreement with investment provisions. We find that the average impact of including an ISDS with strict provisions increase FDI by 73%. This result holds when introducing country-year fixed effects.

We note that the apparent significance of BITs that do not hold any ISDS measures is likely to be due to the sample size. A further shortcoming arises from the lack of data of industry specific bilateral FDI flows, since FDI in certain industries relies more heavily on legal protection, particularly industries reliant on a `behind the border' methods of delivery such as services. Countries specialising in the production of capital intensive goods may therefore be more responsive to a BIT that would, for example, help protect the intellectual property of investors, in which case coefficients presented here may be under-estimated for those countries. The following section summarises the current literature on FDI and BITs, followed by Section 3 which describes the methodology and data used in this paper. Section 4 presents the results, leading into Section 5, which offers a discussion on the relevance of industry specific FDI. Section 6 concludes.

2. Literature Review

International treaties are the primary means by which foreign investors can secure rights to protect their interests abroad (Collins, 2017). While trade and tariff stipulations are at the heart of trade agreements, investment protection can be thought of as another way to support the export of services. Many Preferential Trade Agreements (PTAs) are becoming laboratories for innovative dispute

settlement mechanisms. However, one may also point to the reform of tribunals and the creation of an appellate mechanism under CETA and the EU-Vietnam FTA as evidence that the public discomfort with ISDS is taken seriously. The latter two treaties and TTIP are examples of initiatives on behalf of the EU to create courts for dispute settlement that not only protect investors but also serve the public interest in terms of transparency, and balance between investor protection with national regulation; as Wagner elegantly summarizes, this may be `investment law's Uruguay moment' (2017).

BITs have a long history in the form of so-called Friendship, Commerce and Navigation agreements, although their potency in terms of rules and stipulations is relatively new (Collins, 2017). They serve as binding agreements on various matters concerning investment, with the objective of improving economic advancement between the two contracting parties (not unlike the investment chapters that feature in FTAs). Standard provisions include protection against expropriation, discrimination, and access to an independent tribunal (generally, the ICSID). Importantly, they provide means for individual investors to pursue dispute settlement should the foreign nation infringe their rights (Investor-State Dispute Settlement, or `ISDS'), and features of the mechanism available in the treaty will determine its potency. For example, the coverage of claims covered by the treaty will generally qualify its scope, as some only allow ISDS for breaches in the terms of the treaty alone, whilst others allow ISDS for any investment related dispute, be it within or outside the treaty's premise. A further contention is the status of consent to ISDS provided by contracting parties; some necessitate case-by-case approval by domestic courts while others allow investors to decide whether they would prefer to pursue domestic or third party remedies.

The widespread existence of these treaties may suggest a new international standard with regards to investment protection. Indeed, BITs have proved popular even amongst countries typically opposed to foreign intervention; Latin American countries, China and Russia have all concluded a large numbers of BITs with economies in the West. They have been documented as being instrumental in privatization initiatives in several Eastern European countries after the breakup of the USSR. While these treaties liberalize investment in theory, whether they do so in practice remains a contested issue.

As one of the first studies in this field, Hallward-Driemeier (2003) casts doubt on the impact of BITs on FDI in developing countries. Neumayer and Spess (2005) strive to improve the analysis by regressing total FDI inflows instead of bilateral flows on the number of BITs signed, arguing that a signalling effect emanates not just to the contracting parties but also to third party countries who perceive a willingness to protect investors. As such, they find a robust estimate for the effect of BITs in developing countries, as well as some limited evidence that BITs act as substitutes to poor institutional quality. Interestingly, later attempts to evaluate the effectiveness of more stringent BITs, by controlling for the strength of ISDS measures, fail to observe a significant effect (Berger et al., 2011). However, it is

unclear what precise factors are used to label BITs as weak or strong in terms of their ISDS provisions, overall providing little in terms of comparing which particular features may carry more of an impact.

Antràs and Yeaple (2013) distinguish between two forms of FDI: horizontal and vertical. Horizontal FDI is `an investment in a foreign production facility that is designed to serve customers in the foreign market' (Helpman, Melitz and Yeaple 2004). It is often performed when barriers to trade, usually tariffs or transportation costs, are too high for goods to simply be exported. Horizontal FDI can of course also take the shape of firms setting up affiliates that only serve to sell the parent's goods, altogether skipping production process.

Vertical FDI is described as multinational activity that serves to produce intermediate inputs abroad, in order to exploit cost differences (Antràs and Yeaple, 2013; Antràs and Helpman, 2004). This is in contrast to foreign outsourcing, whereby a foreign firm is tasked with producing the intermediate input, and bargaining takes place ex-ante. Antràs and Helpman (2008) go one step further in describing how differences in capital intensity of certain goods, plus their contractibility, can explain different levels of FDI. This remark was exploited by Osnago, Rocha and Ruta (2015), when they investigated the effect of Preferential Trade Agreements (PTAs) on vertical integration. PTAs that improve the contractibility for inputs, they argue, improve vertical FDI, although they distinguish from vertical FDI for headquarter services, for which FDI is unchanged.

3. Data and Method

Bilateral FDI flows are obtained from the OECD's database of FDI covering 34 countries (excluding Latvia). Data from the 3rd and 4th Benchmark Definition Editions are combined to extend the data series to 1985. Possible breaks in the datasets are taken into consideration, and all data is in millions of USD. The OECD also provides data on real Gross Domestic Product (GDP) in millions of USD with 2010 as the reference year. The data on the value of bilateral trade in goods and services, documented in thousands of USD, is provided by the OECD's Structural Analysis (STAN) database.

We note that the OECD define FDI flows as investment that serves to establish a lasting interest in an enterprise located outside of the investor's home nation (OECD 2009). The keywords `lasting interest' imply a long term commitment on the part of the investor which the OECD and IMF interpret as ownership above a 10% threshold. The OECD documents direct investment statistics in the form of debt and equity, plus the resulting income or financial flows, which are then categorized by home and source countries, as well as the host industry. While FDI statistics seem straightforward and suitable for analysis, the links between FDI and trade in goods and services is complex due in part to the growth of global supply chains.

The data panel includes information for 34 OECD economics, forming a total of 1,122 host to source pairings (34 x 33 = 1,122) with observations from 1985 to 2015. Inflows depend on the specific host and source pair; observations for FDI inflows from the United States to Mexico are different to inflows from Mexico to the United States. Unfortunately, not all host-source pairs have FDI data available in every year. In fact, some groups, for example with Canada as host, report no FDI at all over the relevant years, which consequently limit the size of the panel: 20,985 observations on FDI inflows are counted out of a possible total of 34,647. Of these observations 4,660 are negative (inter-company outflows exceed inward investment) and a further 3,070 are reported as zero. Appendix 3 provides additional summary statistics for all the variables.

Table 1 summarises the total BITs by OECD member states: 189 pairs of countries hold BITs, amounting to a total of 398 observations for BITs entering the dataset (BITs enforced by the Belgium-Luxembourg Economic Union feature as BITs for both Belgium and Luxembourg, since FDI data is available for both individually). It is clear that of the 398 treaties 326 have pre-consent to an ISDS process (assuming that the unmapped do not have ISDS). The data showing the provisions are taken from the UNCTAD dataset. The control group for BITs without ISDS also includes BITs that do not have pre-consent to ISDS, due to the low sample size of such BITs; this is in line with Berger et al. (2011).

Table 1. Descriptive Statistics of BITs by OECD member state

	Number	Percentage
Total BITs in place	398	100%
without ISDS	8	2%
without pre-consent to ISDS	24	6%
with pre-consent alone	112	28%
with unrestricted coverage of claims	184	46%
with binding interpretation	18	5%
with binding interpretation and unrestricted coverage of claims	12	3%
Unmapped	40	10%

Table 1: this table outlines the number of countries that have BITs in place for each category in the available sample. Data on BITs is obtained from the UNCTAD's IIA Mapping Project.

We evaluate the importance of ISDS provisions in BITs on bilateral FDI inflows by dummy variables in an augmented gravity model. The key provisions are the existence of ISDS provisions, the existence of binding interpretation of the treaty rules and the scope of ISDS claims. ISDS is not presumed to exist if sovereigns do not give their prior consent to ISDS arbitration. While this assumptions is consistent with the previous work by Berger et al. (2011), it will be relaxed later in an attempt to identify the effect of pre-consent to ISDS as a third stipulation. Rules are assumed to be binding when contracting parties may not unilaterally make their own interpretation of treaty provisions to the tribunal. Finally, the scope, or coverage, of ISDS is assumed to be unrestricted when ISDS is available for any investment related dispute, beyond what is stipulated in the treaty.

Figure 1. Breakdown of BITs in Place by OECD Member

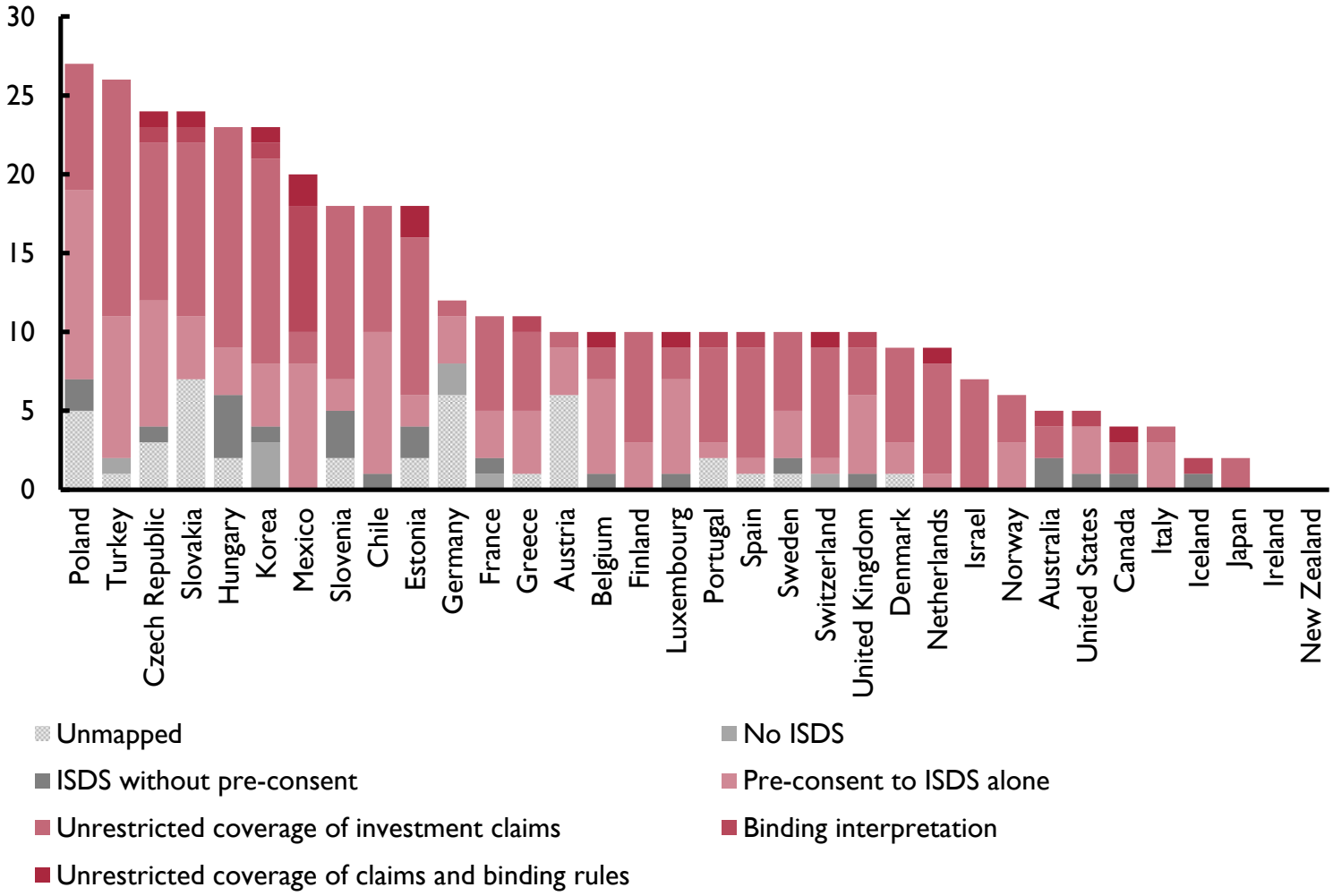

Figure 1: the graph above maps the type of BIT each OECD member has in place. Data on BITs is obtained from the UNCTAD's IIA Mapping Project.

Figure 1 shows the types of BITs and ISDS for each OECD country. Unsurprisingly, the developing economies in the OECD generally have more BITs as the need to reassure investors is arguably greater. The types of ISDS provisions contained in BITs are well distributed across countries. There is no sign that a particular type of country will pursue a particular type of ISDS provisions in their BITs.

The World Trade Organisation (WTO) provides a database for information on all PTAs, including by OECD member countries. Notable examples include EU treaties as well as the North American Free Trade Agreement (NAFTA). Extensive information is available on the contents of the treaties and their stipulations; tariffs, investment, and institutional quality are outlined and evaluated by a multinomial system which measures their extent of implementation and legal enforceability. These stipulations are summarized under several variable headings such as depth of the agreement, the type of trade deals, investment protection provisions and whether the treaty is related to EU membership. We also include a Polity score for each country from the Polity IV Project which is an index from plus 10 to minus 10 based on the level of democracy and institutional quality. Negative scores indicate autocratic rule, and positive scores indicating democratic rule. Appendix 2 summarises all variables used.

3.1 Method

We follow Santos Silva and Tenreyro (2006) and use a Poisson Pseudo Maximum Likelihood (PPML) estimator to take account of instances of zero bilateral investment flows (the log being undefined) and heteroskedastic errors. The PPML estimator provides the same benefits for FDI as for trade data, and is therefore appropriate for this analysis. The model is described as follows:

$$(1) \quad FDI_{ijt} = e\text{^}\{\alpha + B_{ijt} + \beta_6 \ln(GDP_{it}) + \beta_7 \ln(GDP_{jt}) + X_{ijt} + T_t + P_{ij}\}u_{ijt}$$

$$(2) \quad B_{ijt} = \beta_1 BIT_{ijt} + \beta_2 Pre_{ijt} + \beta_3 Bin_{ijt} + \beta_4 Unre_{ijt} + \beta_5 (Bin_{ijt} * Unre_{ijt})$$

Here, FDI inflows from *j* to *i* at time *t* are reported in levels. Variable B_{ijt} describes the status of BITs between *i* and *j*; BIT_{ijt} is a dummy active when a BIT is in place at time t. One striking fact observed in Table 1 is the proportion of treaties that include ISDS measures of various types, so leaving it with a dummy for having a BIT alone is insufficient. The first provision is pre-consent to ISDS, Pre_{ijt}: this variable is equal to one if foreign investors can unilaterally access third party tribunals, such as the ICSID, without consulting local courts first. While additional stipulations are present in some of these treaties, such as restrictions on investors to pursue both local remedies and ISDS simultaneously, these are not taken into consideration. Due to limitations from the sample size, BITs with ISDS provisions that do not involve pre-consent are kept in the control group with BITs that do not have any ISDS; while this is consistent with previous literature, this will be addressed later, although the distinction does not impact the results.

Second, the ability for the sovereign to unilaterally provide interpretation of the treaty terms to the third party tribunal is taken into account with the dummy variable Bin_{ijt}. When equal to one, it indicates that the sovereign is unable to influence the treaty's interpretation alone; this task will

either be assumed by the third party tribunal or with representatives from the treaty's contracting parties.

Third, the scope of the ISDS is included in the dummy variable $Unre_{ijt}$: when equal to one, ISDS is deemed to be available for any investment claim. In contrast, when it is zero the investor can only enact ISDS for breaches to the terms of the treaty alone. Treaties that include some flexibility in this respect, for example by introducing certain exceptions to the scope of ISDS, are categorized as limiting the scope of ISDS, and therefore have the dummy equal to zero. This variable is interacted with Bin_{ijt}, under $(Bin_{ijt} * Unre_{ijt})$, in order to understand the potency of a treaty that offers both binding interpretation of its rules and unrestricted coverage of claims. To be clear, no observation will have dummies Bin_{ijt} and/or $Unre_{ijt}$active unless Pre_{ijt} is active as well.

Furthermore, gravity enters the model in the form of the logs of real GDP in both the host and source economies, $\ln(GDP_{it})$ and $\ln(GDP_{jt})$, respectively. Additional control variables are entered under X_{ijt}; it includes measures for total good imports from country *j* to country *i*, intermediate good exports from country *i* to country *j*, the presence of any preferential trade agreement between *i* and *j* and its investment provisions, and the Polity IV score for the host nation *i*, to control for any political instabilities. Year dummies, under T_t, control for time trends that persist in the data, and dummies for host-source pairs, P_{ij}, control for cross-pair heterogeneity. Importantly, the PPML estimates will be efficient as the error term, u_{ijt}, which displays strong heteroskedasticity, is not logged.

B_{ijt} is the variables of interest. If ISDS causes FDI then β_2 is positive and statistically significant. Estimates of β_3 and β_4 will show if binding rules and unrestricted coverage adds to the potency of ISDS, although β_5 may be the clearest indicator of how more stringent BITs will encourage FDI. It will show the extent to which the effect of binding interpretation of the rules depends on the provision of unrestricted coverage of investment claims. Calculating this effect in an interaction regression model is as follows:

$$(3)\quad E\left(FDI_{ijt}\middle|Unre_{ijt}=d, Bin_{ijt}=1\right)-E\left(FDI_{ijt}\middle|Unre_{ijt}=d, Bin_{ijt}=0\right)=\beta_3+\beta_5 d$$

The estimated overall impacts of BITs with pre-consent to ISDS alone ($\hat{B}_{weak}$) and BITs with wide and binding ISDS ($\hat{B}_{strong}$) can therefore be compared as follows:

$$(4)\quad E(FDI_{ijt}|B_{weak}=1)=\beta_1+\beta_2$$

$$(5)\quad E(FDI_{ijt}|B_{strong}=1)=\beta_1+\beta_2+\beta_3+\beta_4+\beta_5$$

4. Results

Table 2 shows some preliminary results of simple regressions of BITs and ISDS provisions on FDI, using the gravity model framework and controlling for the levels of GDP only. Column (1) shows a similar result found elsewhere, as BITs do not have a statistically significant impact on FDI. We present this simple regression as a point for departure. Column (2) adds the presence of ISDS in the BITs. The difference is striking: it suggests that having a BIT without any ISDS measure has a negative impact on FDI flows. However, we would caution against reading too much into this result due to the small sample of BITs without ISDS (see Table 1). Columns (3) to (5) differentiate the BITs by the type of ISDS provisions contained. BITs are shown to have a positive impact, but the overall effects of the provisions in the BITs are insignificant. In column (6) we include an interaction term between ISDS with binding rules ($ISDS\_Bin_{ijt}$) and unrestricted claims coverage ($ISDS\_Unre_{ijt}$), which has a positive and significant impact on FDI.

Table 2. PPML Estimation for the Effect of BITs on FDI in OECD Countries

Independent Variables:	Dependent Variable: FDI_{ijt}					
	(1)	(2)	(3)	(4)	(5)	(6)
BIT_{ijt}	-0.0534	-3.507**	2.510***	2.513***	2.498***	3.021***
	(0.171)	(1.785)	(0.619)	(0.678)	(0.687)	(0.773)
$ISDS_{ijt}$		3.451**				
		(1.741)				
$ISDS\_Pre_{ijt}$			-2.567***	-2.568***	-2.587***	-2.744***
			(0.633)	(0.666)	(0.660)	(0.729)
$ISDS\_Unre_{ijt}$				-0.00297	0.0141	-0.562
				(0.314)	(0.343)	(0.378)
$ISDS\_Bin_{ijt}$					0.0497	-0.477
					(0.318)	(0.321)
$ISDS\_Bin_{ijt} * ISDS\_Unre_{ijt}$						1.259**
						(0.569)
Host-source FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	15375	14844	14844	14844	14844	14844
Pseudo R-sq	0.605	0.605	0.605	0.605	0.605	0.605

Table 2: This table runs a basic gravity model for bilateral FDI flows and introduces dummy variables to test the effect of Bilateral Investment Treaties (BITs) in increasing these flows. Not shown on the table are the coefficients for GDP for the host and source countries. All specifications also include pair and year fixed effects

Table 3 builds on these results by introducing greater numbers of control variables, and introducing Wald tests to test the combined statistical significance of the provisions. The first step is to introduce the concepts of weak and strong BITs depending on the ISDS provisions in the BIT, following equations (4) and (5). Table 3 column (1) is identical to column (6) in table 2. We define a BIT as weak ($\hat{B}_{weak}$) in terms of investor protection if there is no ISDS provision and only a pre-consent to ISDS. We define a BIT as strong ($\hat{B}_{strong}$) if there are also ISDS provisions for binding rules and unrestricted claims coverage and the interaction of both of these provisions. The results of Wald tests on both statistics are shown in the lower panel of table 3 column (1). This indicates that we fail to reject the null hypothesis that the estimates are statistically different from zero.

Table 3. PPML Estimation for the Effect of BITs on FDI in OECD Countries

Independent Variables:	Dependent Variable: FDI_{ijt}				
	(1)	(2)	(3)	(4)	(5)
BIT_{ijt}	3.021***	3.149***	2.950***	3.163***	1.315
	(0.773)	(0.761)	(0.775)	(0.838)	(1.518)
$ISDS\_Pre_{ijt}$	-2.744***	-2.689***	-2.471***	-2.654***	1.055
	(0.729)	(0.732)	(0.742)	(0.809)	(1.503)
$ISDS\_Unre_{ijt}$	-0.562	-0.691**	-0.644*	-0.728*	-2.911*
	(0.378)	(0.343)	(0.354)	(0.393)	(1.666)
$ISDS\_Bin_{ijt}$	-0.477	-0.515*	-0.508*	-0.653***	-7.543***
	(0.321)	(0.266)	(0.269)	(0.250)	(1.453)
$ISDS\_Bin_{ijt} * ISDS\_Unre_{ijt}$	1.259**	1.716***	1.677***	1.657***	4.796**
	(0.569)	(0.520)	(0.518)	(0.492)	(2.247)
$ln(GDP_{it})$	2.250***	2.406***	2.436***	2.359***	2.409***
	(0.579)	(0.577)	(0.589)	(0.636)	(0.652)
$ln(GDP_{jt})$	1.873***	1.877***	1.850***	1.471***	1.460***
	(0.451)	(0.468)	(0.454)	(0.505)	(0.505)
$Polity_{it}$		-0.0808***	-0.0908***	-0.122***	-0.118***
		(0.0238)	(0.0237)	(0.0297)	(0.0318)
PTA_{ijt}			-0.323	-0.384	-0.401
			(0.288)	(0.284)	(0.287)
Inv_Pro_{ijt}			0.0643**	0.0497	0.0507*
			(0.0316)	(0.0305)	(0.0307)
$ln(X_{ijt})$				0.122	0.129
				(0.120)	(0.120)
$ln(M_{ijt})$				0.235	0.230
				(0.145)	(0.146)
Polity Interactions: BIT_{ijt}					0.185
					(0.134)
Polity Interactions: $ISDS\_Pre_{ijt}$					-0.412***
					(0.137)
Polity Interactions: $ISDS\_Unre_{ijt}$					0.264
					(0.187)
Polity Interactions: $ISDS\_Bin_{ijt}$					0.843***
					(0.171)
Polity Interactions: $ISDS\_Bin_{ijt} * ISDS\_Unre_{ijt}$					-0.368
					(0.262)
$\hat{B}_{weak}$	0.277	0.459*	0.479*	0.509**	-
	(0.294)	(0.239)	(0.248)	(0.241)	(-)
$\hat{B}_{strong}$	0.497	0.971***	1.003***	0.785***	-
	(0.403)	(0.373)	(0.357)	(0.299)	(-)
Host-source FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	14844	13252	13252	12878	12878
Pseudo R-sq	0.605	0.615	0.617	0.617	0.617

Table 3: this table outlines the regression for FDI inflows on different BITs. Standard errors are in brackets; one star indicates statistical significance at 10% level, two stars at 5%, and three at 1%. Specification (1) presents a simple gravity model, whereby real GDP of host and source countries feature alone. Host-source fixed effects are present in every specification to control for the large cross-country heterogeneity that inevitably occurs (for example, distance between two countries). Specification (2) includes year dummies to control for trends that likely occurred in FDI inflows. Specification (3) adds controls for trade between the two countries in question, (4) controls for trade agreements that are in place plus relevant investment protection stipulations, and (5) controls for the host country's Polity score of the FDI host. Column (6) presents interactions between ISDS clauses and the Polity scores. Wald tests for the full impact of BITs that have pre-consent to ISDS alone ($\hat{B}_{weak}$) and that have all ISDS provisions included ($\hat{B}_{strong}$) are presented at the bottom, with their respective standard errors in brackets.

In column (2) of Table 3 we control for the Polity variable as a measure of institutional quality. The estimated coefficient is statistically significant at 1% for strong BITs, and at 10% for weak BITs. In the context of signing BITs to improve institutional quality, this makes sense; the sensitivity of the effect of BITs to institutional quality is further reinforced when accounting for possible interaction effects between the contractual contents of BITs and Polity IV, as seen under column (6). While there is little change in the size of the other coefficients and the joint significant tests improve. Moreover, because of the log structure, the coefficients can be interpreted as elasticities; economic interpretation is that having a weak BIT can on average increase FDI flows by 46%, while a strong BIT can on average increase FDI flows by 97% after accounting for the size of economies, quality of institutions and time and host-source fixed effects.

However, a strong note of caution is required. The contractual terms on BITs are choice variables that are decided by politicians, just like the decision to enter into a trade agreement. The choice is likely to depend on other considerations, implying that they are determined within a global model and the coefficients are likely to be biased.[2] For example, countries with poor quality institutions that are not fully captured in the Polity index may be more likely to include stricter ISDS provisions in BITs. This would overstate the economic importance of the BIT provisions.

In column (3) we include a dummy variable to show whether the pair of countries have a PTA between them, as well as any investment provisions. This may be driving the greater FDI flow and the willingness to have a strong BIT. The size and significance of the ISDS provisions are barely changed at the joint significance tests re-enforce the importance of the BIT provisions. In column (4) we include trade between two countries. Total capital flows are related to trade flows through the balance of payments. It may be that large bilateral trade flows drive the investment flows and perhaps even the willingness to enter strong BITs. The economic impact of the strong BIT is reduced but remains statistically significant at 1%. The results suggest that accounting for the size of economies, quality of institutions, PTAs and bilateral trade flows and fixed effects a strong BIT can on average increase FDI inflows by 78%. A pseudo R-square value of around 0.6 indicates a reasonably good fit as far as FDI models go, since FDI can be inconsistent with different processes of documentation in each country.

In column (5) we evaluate the effectiveness of the various clauses when interacting them with the Polity scores. Intuitively, the stringency of rules ought to be more effective in states that do not offer solid legislative infrastructure to protect investment, therefore proving to be more effective in stimulating FDI inflows. While there is evidence of a statistically significant effect in ISDS pre-consent when interacted, the result on BITs that hold binding interpretation holds the opposite sign; the former confirms ISDS to be more effective in countries with low Polity scores, while the latter refutes this hypothesis.

[2] This problem is true of virtually all trade models where policy variables are on the right hand side.

The investment protection clauses in PTAs (Inv_Pro_{ijt}) are statically significant at 10% in boosting FDI inflows. In their paper, Osnago, Rochta and Ruta (2015) point out how the type of provisions included in PTAs matters. Note that the model presented here pays no regard to treaties that exist in conjunction with others. There are, for example, a certain number of BITs signed between EU member states. In addition, the negative sign of $Polity_{ijt}$ is counter-intuitive, as it suggests that countries with lower institutional quality receive higher FDI inflows, although this may also be an endogenous result driven by the emerging markets in the sample. Interestingly, this result holds when using an alternative measure of institutional quality, namely POLCON V; addressing this endogeneity hypothesis would be an interesting extension, although one not made here as it extends beyond the scope of this paper.

The lack of industry specific bilateral FDI data may prove to be a major downside. For example, service industries more reliant on Mode 3 delivery, defined as a commercial presence in foreign countries through branches or subsidiaries, will inevitably be more exposed to the status of protection of their assets (UN, 2010). As such, countries reliant on FDI from the service sector, such as the UK which receives roughly 60% of its inward FDI positions in the service sector, ought to have a greater incentive to sign BITs to safeguard investment (ONS, 2014). Antràs and Yeaple (2013) note that multinational activity is relatively higher in capital and R&D intensive industries. Controlling for FDI inflows by industry would likely give more meaningful results with regards to the importance of preferential trade agreements. Being able to further differentiate between various industries would give a much better idea how susceptible a particular country's FDI is to ISDS provisions, given its relative reliance on some industries over others (Antràs and Helpman, 2008).

As a robustness test, the model is adapted to include country-year fixed effects. Country and time invariant variables are dropped from the model, notably GDP as well as Polity scores. However, country –year fixed effects may address some of the heterogeneity in previous calculations, for example from exchange rate fluctuations or economic crises. These results are shown in table 4. The statistical and economic significance of including all ISDS investor protection provisions on FDI inflows remains. However, the estimates of weak BITs are no longer statistically significant as influencing FDI inflows.

Table 4. PPML Estimation for the Effect of BITs on FDI in OECD Countries with Country-Year FE

Independent Variables:	Dependent Variable: FDI_{ijt}		
	(1)	(2)	(3)
BIT_{ijt}	0.312	-0.211	-0.163
	(1.085)	(1.185)	(1.202)
$ISDS\_Pre_{ijt}$	-0.257	0.397	0.410
	(1.071)	(1.173)	(1.190)
$ISDS\_Unre_{ijt}$	-0.310	-0.492	-0.532*
	(0.317)	(0.322)	(0.322)
$ISDS\_Bin_{ijt}$	0.0824	-0.0421	-0.0830
	(0.307)	(0.307)	(0.302)
$ISDS\_Bin_{ijt} * ISDS\_Unre_{ijt}$	0.908	0.982**	1.097**
	(0.571)	(0.498)	(0.500)
$ln(X_{ijt})$		0.0333	0.0109
		(0.0869)	(0.0865)
$ln(M_{ijt})$		0.0435	0.0290
		(0.110)	(0.112)
PTA_{ijt}			-0.241
			(0.286)
Inv_Pro_{ijt}			0.0158
			(0.0309)
$\hat{B}_{weak}$	0.055	0.187	0.247
	(0.09)	(1.04)	(1.66)
$\hat{B}_{strong}$	0.736**	0.256**	0.729***
	(4.00)	(6.05)	(6.97)
Host-source FE	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes
Observations	14786	13225	13225
Pseudo R-sq	0.859	0.858	0.858

Table 4: this table describes the effect of BITs on FDI inflows when country-year fixed effects are taken into consideration. Note that usual elements of gravity are not present here (GDP), since they do not vary for countries between host-source groups by year. Trade in goods, introduced in column (2), remain a variable control as they do offer variation between groups. Similarly, the presence of PTAs and their investment provisions provide additional controls in column (3).

5. Conclusion

Our analysis shows that more stringent investment protection provisions in BITs have a larger influence on FDI inflows in OECD countries. We estimate that a strong BIT, measured by the included ISDS provisions increase FDI by an approximately 73% which is statistically significant at a 1% level. This result holds if we include country-year fixed effects. While the impact of weak BITs is estimated as being positive, it displays little statistical significance when accounting for country-year fixed effects. Our findings mirror those by Osnago, Rochta and Ruta (2015) for trade, as, just like for PTAs, the content of BITs will determine their usefulness.

As one possible extension, controlling for the industry in which FDI takes place stands out as an important factor in theoretical papers, particularly when it comes to explaining vertical FDI. As such, estimates for the importance of BITs and ISDS may hinge on the sectoral makeup of a particular country; the effect of intellectual property rights, and effective methods to protect these, will likely

impact FDI in the creative service sector substantially more than, say, in the manufacturing sector. Furthermore, the UNCTAD's IIA Mapping Project is an ongoing project, and there are a number of extra treaties that are not mapped as of now, which could offer some additional insight.

OECD members looking to promote inward FDI may consider signing BITs that are stringent in terms of offering ISDS investor protection provisions. However, public opinion may consider that such provisions compromise the policy domain of their governments. As the UK is the third largest recipient and donor of FDI in the world, this will be an important consideration when negotiating trade and investment agreements after leaving the EU.

Bibliography

Antràs, P. and Helpman, E. (2004), `Global Sourcing', *Journal of Political Economy*, vol. 112, no. 3, pp. 552-580.

Antràs, P. and Helpman, E. (2008), `Contractual Frictions and Global Sourcing', in Helpman, E., Marin, D., and Verdier, T. (eds), The Organization of Firms in a Global Economy, Harvard University Press: 9-54.

Antràs, P. and Yeaple, S.R. (2013), `Multinational Firms and the Structure of International Trade', National Bureau of Economic Research (NBER), Working Paper no. 18775.

Berger, A., Busse, M., Nunnenkamp, P. and Roy, M. (2011), `More Stringent BITs, less ambiguoug effects on FDI? Not a Bit!', Economic Letters, vol. 112(3), pp. 270-272.

Casper, Gretchen, and Claudiu Tufis. 2003. "Correlation Versus Interchangeability: the Limited Robustness of Empirical Finding on Democracy Using Highly Correlated Data Sets." Political Analysis 11: 196-203.

Collins, D. (2017), An Introduction to International Investment Law, Cambridge University Press.

Hallward-Driemeier, M. (2003), `Do Bilateral Investment Treaties Attract FDI? Only a bit… and they could bite', World Bank Group, Policy Research Paper, no. 3121.

Helpman, E., Melitz, M.J. and Yeaple, S.R. (2004), `Export versus FDI with Heterogenous Firms', American Economic Review, vol. 94(1), pp. 300-316.

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

OECD (2009), OECD Benchmark Definition of Foreign Direct Investment: Fourth Edition, OECD Publication Center.

OECD (2017), FDI flows (indicator). doi: 10.1787/99f6e393-en (Accessed on 03 May 2017).

ONS (2014), `International perspective on UK foreign direct investment (FDI): 2014', Office for National Statistics, url: <https://www.ons.gov.uk/economy/nationalaccounts/balanceofpayments/articlesinternationalperspectiveonukforeigndirectinvestmentfdi/2014 > .

Osnago, A., Rocha, N. and Ruta, M. (2015), `Deep Trade Agreements and Vertical FDI: The Devil Is in the Details', World Bank Group, Policy Research Working Paper, no. 7464.

Santos Silva, J.M.C. and Tenreyro, S. (2006), `The Log of Gravity', The Review of Economics and Statistics, vol. 88, no. 4, pp. 641-658.

UN (2010), `Manual on Statistics of International Trade in Services', Department of Economic and Social Affairs, url: < https://unstats.un.org/unsd/tradeserv/TFSITS/manual.htm> .

UNCTAD (2017), `UNCTAD IIA Mapping Project', url: <http://investmentpolicyhub.unctad.org/IIA/mappedContent> (Accessed 01 May 2017).

Wagner, M. (2017), `Investment Law's Uruguay Moment,' King's Forum on International Dispute Resolution.

Appendix 1. Variable Descriptions

Variable	Description
FDI_{ijt}	FDI inflow from country *j* to country *i* at time *t*, in millions of USD
BIT_{ijt}	Dummy equal to one if BIT is enforced, between *i* and *j* at time *t*
$ISDS\_Pre_{ijt}$	Dummy equal to one if BIT includes pre-consent to ISDS, between *i* and *j* at time *t*
$ISDS\_Unre_{ijt}$	Dummy equal to one if ISDS covers any investment related dispute, between *i* and *j* at time *t*
$ISDS\_Bin_{ijt}$	Dummy equal to one if treaty interpretation is binding, between *i* and *j* at time *t*
$ISDS\_Bin_{ijt} * ISDS\_Unre_{ijt}$	Interaction term between $ISDS\_Unre_{ijt}$ and $ISDS\_Bin_{ijt}$
$ln(GDP_{it})$	Logarithmic value of GDP in 2010 USDS, with constant PPP, calculated via expenditure approach, for country *i* at time *t*
$ln(GDP_{jt})$	Logarithmic value of GDP in 2010 USDS, with constant PPP, calculated via expenditure approach, for country *j* at time *t*
$ln(X_{ijt})$	Logarithmic value of exports in intermediate goods in 000's of USD, from country *i* to country *j* at time *t*
$ln(M_{ijt})$	Logarithmic value of imports of total goods in 000's of USD, to country *i* from country *j* at time *t*
PTA_{ijt}	Dummy equal to one if PTA is enforced, between *i* and *j* at time *t*
Inv_Pro_{ijt}	Number and strength of investment provisions included in enforced PTA, between *i* and *j* at time *t*
$Polity_{it}$	Polity IV score, in country *i* at time *t*

Appendix 1: this table presents descriptions of the variables used.

Appendix 2. Variable Summary Statistics

Variable	Observations	Mean	Std. Dev.	Min	Max
FDI_{ijt}	20985	681.01	4382.84	-95814	143298
GDP_{it}	33561	1096891	2231455	6280.94	16597446
GDP_{jt}	33561	1096891	2231455	6280.94	16597446
X_{ijt}	27252	2205411	8452232	.2	2.30e+08
M_{ijt}	27287	4257502	1.49e+07	.107	3.54e+08
PTA_{ijt}	34782	0.368	0.482	0	1
Inv_Pro_{ijt}	34782	3.012	4.234	0	12
$Polity_{ijt}$	32670	9.125	2.368	-7	10

Appendix 2: summary statistics are presented for each variable considered.

Appendix 3. PPML Estimation for the Effect of BITs on FDI in OECD Countries, when differentiating between no ISDS and ISDS without pre-consent

Independent Variables:	Dependent Variable: FDI_{ijt}					
	(1)	(2)	(3)	(4)	(5)	(6)
BIT_{ijt}	-2.444***	-3.529**	5.006***	5.036***	-2.279	-2.289
	(0.662)	(1.786)	(0.674)	(0.672)	(1.477)	(1.489)
$ISDS_{ijt}$	5.407***	6.551***	-1.968*	-1.936*	5.441***	5.708**
	(0.914)	(1.970)	(1.108)	(1.098)	(1.792)	(2.236)
$ISDS\_Pre_{ijt}$	-2.778***	-2.744***	-2.815***	-2.764***	-2.654***	1.055
	(0.665)	(0.729)	(0.806)	(0.811)	(0.809)	(1.503)
$ISDS\_Unre_{ijt}$	-0.559	-0.562	-0.567	-0.623	-0.728*	-2.911*
	(0.387)	(0.378)	(0.418)	(0.415)	(0.393)	(1.666)
$ISDS\_Bin_{ijt}$	-0.461	-0.477	-0.552*	-0.605**	-0.653***	-7.543***
	(0.346)	(0.321)	(0.301)	(0.296)	(0.25)	(1.453)
$ISDS\_Bin_{ijt}$* $ISDS\_Unre_{ijt}$	1.455***	1.259**	1.005*	1.179**	1.657***	4.796**
	(0.56)	(0.569)	(0.527)	(0.533)	(0.492)	(2.247)
$ln(GDP_{it})$	2.166***	2.250***	2.176***	2.302***	2.359***	2.409***
	(0.37)	(0.579)	(0.624)	(0.635)	(0.636)	(0.652)
$ln(GDP_{jt})$	1.637***	1.873***	1.433***	1.484***	1.471***	1.460***
	(0.351)	(0.451)	(0.499)	(0.499)	(0.505)	(0.505)
$ln(X_{ijt})$			0.121	0.109	0.122	0.129
			(0.119)	(0.116)	(0.120)	(0.120)
$ln(M_{ijt})$			0.266*	0.241*	0.235	0.23
			(0.139)	(0.144)	(0.145)	(0.146)
PTA_{ijt}				-0.466	-0.384	-0.401
				(0.283)	(0.284)	(0.287)
Inv_Pro_{ijt}				0.0515*	0.0497	0.0507*
				(0.0305)	(0.0305)	(0.0307)
$Polity_{it}$					-0.122***	-0.118***
					(0.0297)	(0.0318)
Polity Interactions: BIT_{ijt}						0.185
						(0.134)
Polity Interactions: $ISDS\_Pre_{ijt}$						-0.412***
						(0.137)
Polity Interactions: $ISDS\_Unre_{ijt}$						0.264
						(0.187)
Polity Interactions: $ISDS\_Bin_{ijt}$						0.843***
						(0.171)
Polity Interactions: $ISDS\_Bin_{ijt}$* $ISDS\_Unre_{ijt}$						-0.368
						(0.262)
Host-source FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	Yes	Yes	Yes	Yes	Yes
Observations	14844	14844	13252	13252	12878	12878
Pseudo R-sq	0.557	0.605	0.615	0.617	0.617	0.617

Appendix 3: Unlike Table II, the base dummy for BITs is split to disseminate the effect of including ISDS provisions that do not offer pre-consent. As is evident, the signs and magnitudes of the coefficients are extremely sensitive to the precise specification, likely as a result of a low sample of such treaties. It is therefore hard to conclude on the overall effectiveness of treaties that do not hold any ISDS provisions, but evaluating the effect of deeper provisions is still possible. Note that estimates for the remaining explanatory variables do not change, since the introduction of the extra variable has not actually changed the control groups.