Do legal remedies matter? New evidence from a natural experiment in the investment treaty network

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Abstract

There is a debate among investment policy makers whether legal remedies in bilateral investment treaties (BITs) impact investment decisions of multinational corporations (MNCs). There is also a question of whether legal remedies impose a cost on host countries and, if yes, how much? To answer these questions I use a natural experiment arising from an arbitration decision (Mafezzini v. Spain (1999)). In this decision the arbitrators ruled for the first time that a most favored nation (MFN) clause in a BIT extends to legal remedies. Prior to Mafezzini v. Spain a firm bringing a claim against a host country relied exclusively on the legal remedies in the BIT under which the dispute arose. After Mafezzini v. Spain, if the BIT in question includes a MFN clause, the investor may now invoke legal remedies in any other active BIT signed by the host country. This decision acts like an unanticipated shock to the investment treaty network that modifies the legal remedies available to investors. I use this natural experiment in tandem with a new comprehensive database on the content of approximately 2700 BITs, created in partnership with the United Nations Conference on Trade and Development (UNCTAD). I find that, although better legal remedies in BITs do not attract new investment from MNCs, they do impose a cost on host countries through increased exposure to arbitration proceedings.

1 Overview

A BIT is a treaty signed by two countries that grants certain protections to investors from one signatory when investing in the other signatory. These protections typically include

protection from expropriation and protection from discrimination vis-a-vis other foreign firms or vis-a-vis domestic firms. If the host-country violates the treaty, the BIT grants investors legal remedies that often include the right to seek reparations in an arbitration tribunal outside the jurisdiction of the host-country.

More than 3200 BITs have been signed since 1959, with 2,321 BITs currently in force [1]. There is mixed empirical evidence on whether BITs attract investment. There is also mounting concern among many scholars and policy makers that legal remedies in BITs impose high costs on host economies. These costs are realized through eroded domestic sovereignty caused by disputes being removed from domestic courts. Costs are also realized through a higher exposure to arbitration proceedings, resulting always in attorneys fees and often in the payment of damages. Seventy new arbitration cases were filed in 2015 bringing the total number of cases filed to more than 700.[2]

In response to growing exposure to arbitration actions, many countries are considering limiting legal remedies in investment treaties. Some countries have recently taken decisive action. For example, India, the tenth largest recipient of FDI in 2015, was also respondent to 12 arbitration disputes in 2015.[3] In July of 2016 India sent notice to 57 countries of its unilateral termination of BITs with those countries and requested an opportunity to renegotiate those agreements. Based on the current draft of the India Model BIT, new BITs will likely include much weaker legal remedies.

There is little existing empirical work on how weaker legal remedies in a BIT may affect FDI decisions of firms. There are three primary challenges to credibly answering this question. The first is that one would need granular data on the precise content of each investment treaty, both in terms of legal remedies and other substantive protections. Having this data would enable a researcher to compare outcomes of BITS with weak versus strong legal remedies while controlling for the strength of the rest of the protections in the agreement. The second challenge is endogeneity; two countries are more likely to sign a BIT if the investment opportunities between the two countries are high and the protections in the treaty are relevant. The third challenge is isolating the effect of the legal remedies from the effect of the remainder of the BIT. Even if one could credibly argue that an event study centered around the entry into force of BITs was causal evidence of the effect of a BIT on attracting investment, it would be hard to isolate the effect of legal remedies on FDI from the effect of the other protections that are introduced at the exact

[1] UNCTAD 2016a
[2] UNCTAD 2016b
[3] UNCTAD 2016b

same time as the legal remedies.

To address the first challenge I have spent the last four years working in partnership with the United Nations Conference on Trade and Development (UNCTAD) to create a comprehensive database on the content of all BITs with publicly available text. To address the second and third challenges I have identified a natural experiment arising from an arbitration decision in 2000. The arbitration decision allowed an investor to invoke the most favored nation protection in it's treaty to gain access to better legal remedies in other treaties signed by the host country. This natural experiment enables me to both eliminate the endogeneity concern as well as isolate the effect of the legal remedies from the effect of the rest of the BIT protections.

Using the new database in tandem with this identification strategy I am able to show that the strength of legal remedies in a BIT do not attract more investment from a protected investor. I also show that, although stronger legal remedies do not increase investment, they do increase a host country's exposure to arbitration proceedings. Together these two results provide evidence that it may be optimal for host economies to sign BITs with weaker legal remedies.

This project builds on an active literature on whether or not BITs affect FDI flows. There are many papers that run reduced form regressions of FDI on an indicator variable for an active BIT and various controls. The findings of these papers vary depending on the country pairs included in the sample and the control variables added to the model specification. See UNCTAD (2014) for a comprehensive summary. There are a handful of papers that make an attempt to develop an identification strategy. For example, Busse, et. all (2010) use the number of BITs signed by each country in a pair as an instrument for whether a BIT is active between the country pair. The authors find that BITs increase FDI. However, the authors do not present an argument that the instrument is exogenous to the error term or that the exclusion restriction is satisfied. Berger, et. all (2012) is the only paper in the literature that goes beyond coding BITs as a single indicator variable. This paper considers the content of a BIT in a single dimension (whether or not arbitration is included in the treaty). Running reduced form regressions, the authors find FDI flows are higher if a BIT includes arbitration. However the authors do not attempt to develop a causal argument and the variation of treaty content is only one dimensional.

This paper contributes to this literature by being the first to consider many different dimensions of the content of a BIT (51 provisions/variations). This paper also contributes to the literature by introducing a new identification strategy using an unanticipated interpretation of a treaty provision to study whether or not a particular class of protections

(better legal remedies) in a BIT cause an increase in FDI. In addition, this paper asks whether the costs of better legal remedies, realized through exposure to arbitration, outweigh the benefits of increasing FDI.

This paper also contributes to two broader literatures. The first is determining whether and to what extent the rule of law plays a role in facilitating growth in a developing economy. Domestic legal institutions in a developing economy may be biased or unreliable. Legal remedies in a BIT create an outside option for investors to resolve legal disputes with the host government. Understanding how protected investors respond to these legal remedies can help us understand how better legal institutions may facilitate investment and long run growth. The second literature is a new wave of research in the trade literature studying non-tariff barriers to trade and investment. Investment treaties are designed to reduce a range of non-tariff barriers to investment. One potential barrier is low quality domestic courts. Legal remedies in a BIT help to partially eliminate this barrier and thus can further our understanding of the relevance of this particular non-tariff barrier to investment.

The paper proceeds as follows: Section 2 provides an overview of the UNCTAD International Investment Agreements (IIA) Database. Section 3 presents the precise methodology used to estimate the strength of the legal remedies in each BIT as well as a brief summary of the methodology used to estimate the overall strength of each BIT. Section 4 describes the identification strategy and the way in which the arbitration decision acts as an unanticipated shock on the legal remedies available in each BIT. Section 5 presents the findings of the paper. Section 6 concludes.

2 The UNCTAD IIA Database

From January 2013 through December 2016 I worked in partnership with UNCTAD to implement the University Mapping Project. The purpose of the project was to create the UNCTAD IIA database. This database, completed in early 2017, contains granular data on 122 different treaty protections and their variations for more than 2700 BITs.

Due to the magnitude of the project, the actual text analysis of the agreements (in more than 8 languages) was done by over 550 law students at 42 universities in 22 countries. The work was supported by the IIA Section at UNCTAD, which provided technical and administrative support. It is estimated that more than 20,000 man hours were spent on the creation of the database.

The Mapping Project was completed in six segments. Each segment was organized

during an academic term, with the first segment being held in winter of 2013 and the sixth segment being held in autumn of 2016. Six sets of students participated in the different segments. During each segment, all students completed a training exercise in which they each mapped the same two BITs using a 90 page Mapping Guide (providing detailed explanations and text examples of how to map each provision) and an excel file formatted for the entry of the mapping data. The training BITs were also mapped by UNCTAD. Each student mapping was compared to the UNCTAD mapping to gauge accuracy of student work and provide students with feedback as part of their training.

After training, students completed three rounds of mapping. During each round students were assigned a partner and a mapping assignment. Each mapping assignment included four unique BITs and one common BIT (the control BIT already mapped by UNCTAD). Students first completed the mapping assignment independently. Students then compared their own mapping with their partner mapping and worked together to resolve any discrepancies. A mapping assignment was only added to the database if a partnership achieved 95 percent accuracy (i.e. matched the UNCTAD mapping of the control treaty on at least 95 percent of the provisions). The average accuracy rate of student work included in the database is 98.2 percent.

3 Estimating the strength of a BIT

The structure of a BIT is fairly uniform across country pairings and the broad categories are the same: (1) define the entities and/or assets that will be protected (DEF), (2) articulate investor protections (PROT), (3) set forth Host State obligations (OBL) (4) establish how long the protections and obligations will last (DUR), and (5) specify the legal remedies, i.e. how the treaty may be enforced (REM). While the structure is uniform across BITs, there is variation in the actual content of the BITs in each of these categories. A summary of these provisions and the within-BIT variation of these provisions is provided in Appendix A.

To illustrate why within-BIT variation matters consider the following simplified case study comparing the content of two BITs. Consider first a BIT with a broad definition of both investment and investor, that includes all standard investor protections and host state obligations, that has a duration of 20 years, automatic renewal for an additional 20 years and a survival clause of 20 years, and legal remedies that allow an investor unqualified access to bring any claim against the host country. Consider now a second BIT. This BIT has a narrow definition of investment and investors. For example, this BIT excludes

portfolio investment (i.e. general shareholders) as well as investments in real-estate from the definition of investment. The second BIT also only includes protection from direct (but not indirect expropriation) and does not include protection from discrimination relative to domestic and other foreign investors. The second BIT includes limited host-state obligations (i.e. the country can impose performance requirements, such as requiring an investor to source a certain share of inputs from domestic firms, on the company and has a lot of lee-way to freeze assets if the country thinks it is necessary). The duration of the second BIT is also much shorter, only 10 years, with automatic renewal but for an indefinite duration, which means the BIT can be terminated at any time after the first 10 years expire. The BIT also only includes a survival clause of 5 years. The enforcement mechanism requires the investor to get permission from the country before an arbitration claim can be filed and also includes other hoops the investor must jump through before they can enforce the treaty (i.e. litigate first in domestic courts).

The first BIT is much more favorable for investors. Since the definitions are broad, it is easier for investors to argue that they fall under the definition. Under the second BIT there is less investment being protected and there is also a higher hurdle that an investor must clear in order to invoke the protections of the treaty. Since the protections and obligations in the first BIT are broadly stated, the BIT gives countries less wiggle room to argue the treaty has not been violated relative to the second BIT. This means that investors will be able to settle disputes more quickly and are more likely to get an award for damages for a treaty violation under the first BIT. Note also that the duration provisions in the first BIT ensure that the protections are in place for a minimum of 20 years plus an additional 20 years after an event of termination for a total of 40 years. The second BIT, by contrast, may protect an investment for as few as 15 years, less than half the amount of time as the first BIT. As for legal remedies, the first BIT gives investors a lot of flexibility in bringing a claim and enforcing the treaty. The second BIT provides little protection, since the investor must first get permission from the country to bring a claim and, even then, the other conditions in place will slow down the process and impose higher litigation costs on the investor when seeking to enforce the treaty.

With this simple example providing some context, I now describe the precise methodology used to estimate the strength of the legal remedies in a BIT. I then describe briefly how this methodology is extended to estimate the strength of the entire treaty. Before delving into specifics, note that it is a straight forward exercise to order variations of a particular protection from most to least favorable for an investor. The challenge is figuring out the best way to pin down how much more favorable a particular variation is relative to

another variation of the same protection and how much to weight each protection relative to other protections. Appendix B describes six different methods used to measure the strength of a BIT. Appendix B also contains robustness checks of all results using these different methods. To determine which of the six methods is the method to capture BIT strength I have conducted a conjoint experiment. Eight legal experts on international investment law participated in the experiment. Each participant was presented with a set of three different combinations of legal remedies. The participant was then asked to select which combination from among the three was the most optimal for investors. This selection question was repeated 12 times with different combinations of legal remedies for each legal expert. Using the responses from this survey I am able to compare the prediction of a particular method with the choice made by the legal scholar. The outcome of this comparison for each method is presented below. As can be seen in the table, Method 1 was best at predicting the choice of the legal expert. As a result, this method is the primary method presented in the paper. As discussed further in Appendix B, the primary findings of the paper are robust across all six methods of measuring BIT strength.

3.1 Strength of Legal Remedies

The strength of the legal remedies in a BIT is based on three baseline provisions: (1) what can give rise to a claim (scope) (X_1), (2) where a claim can be brought (forum) (X_2) and (3) which forum takes precedence (interactions between forums) (X_3). Each of these baseline provisions have different variations, some more favorable to investors than others. To estimate the strength of legal remedies I first ordinally rank the variations of each provision from most to least protective. I then assign a score to each variation, starting at 1 and decreasing the score by 0.1 for each step down in the ordinal ranking. The baseline score for the legal remedies is just the simple average of the scores for these provisions. This score may be scaled down if limitations or qualifications are also included in the legal remedies section (as discussed below). Alternative methods of measuring the strength of legal remedies and the overall strength of a BIT used in robustness checks is discussed in Appendix B.

In the UNCTAD IIA Database the scope of legal remedies has three variations. The first (X_1^1) is the most broad, allowing an investor to bring a claim against the host-country for any dispute. The second (X_1^2) is more narrow, allowing an investor to bring a claim only for violations of the the treaty or for other specified reasons (i.e. a dispute arising under a contract between the investor and the host country). The third (X_1^3) is the

most narrow, only allowing claims for disputes arising under violations of the treaty itself. For purposes of estimating the strength of legal remedies in a BIT, these variations are assigned the following numerical values:

- $X_1^1 = 1$
- $X_1^2 = 0.9$
- $X_1^3 = 0.8$

The Database also documents the different forum options (i.e. the court or tribunal before whom a claim may be filed) listed in a BIT. These options typically include the International Centre for Settlement of Investment Disputes (ICSID) housed at the World Bank and/or the United Nations Commission on International Trade Law (UNCITRAL) housed at the United Nations. Other forum options may also be included, such as the Arab Investment Council or the International Chamber of Commerce. For purposes of estimating the strength of legal remedies I indicate whether a BIT includes both UNCITRAL and ICSID (X_2^1), whether a BIT includes UNCITRAL or ICSID but not both (X_2^2), whether a BIT does not include either UNCITRAL or ICSID but does include some other forum option (X_2^3), and whether a BIT does not list any specific forum options (X_2^4). These variations are assigned the following numerical values:

- $X_2^1 = 1$
- $X_2^2 = 0.9$
- $X_2^3 = 0.8$
- $X_2^4 = 0.7$

The Database also documents how different forums may interact with one another, i.e. if an investor begins a claim in a particular forum they may or may not forfeit their right to bring a later claim arising under the same breach of the treaty in a different forum. The Database documents four variations of interactions between forums. First, the treaty may explicitly preserve the right of an investor to file an arbitration proceeding even if a claim has already been brought before a domestic court (X_3^1). Second, the treaty may make no reference to these interactions (X_3^2). Third, the treaty may impose a no U-turn condition, meaning that once an investor has chosen a forum, the claim cannot be brought before a different forum (X_3^3). Fourth, the treaty may require that a dispute

first be litigated in the domestic court as a pre-condition to bringing a claim in another forum (X_3^4). These variations are assigned the following numerical values:

- $X_3^1 = 1$
- $X_3^2 = 0.9$
- $X_3^3 = 0.8$
- $X_3^4 = 0.7$

There are three limitations that a BIT may impose on the scope of legal remedies. The first limitation may only allow legal remedies for violations of a subset of the protections in the BIT (L_1). The second limitation may exclude certain policy areas from legal remedies (i.e. if the excluded policy area was public health, an investor may not bring a claim against an action taken by the host government if that action was taken to protect the public health) (L_2). The third limitation prevents legal remedies for a claim arising under a tax policy imposed by the host country. For each of these limitations $L_i = 1$ if the limitation is not included and $L_i = 0.9$ if it is included.

There is also a qualification that may severely limit an investor's access to legal remedies. The qualification (Q_1) is when a host country does not consent to arbitration in the treaty and instead requires an investor to get permission from the host country after a breach has occurred and before a claim can be brought in arbitration (Q_1). If this qualification is not included in a BIT it is coded as $Q_1 = 1$. If it is is included, $Q_1 = 0.5$.

The overall strength of legal remedies is calculated using a simple average of the strength of the three baseline provisions, scaled by the limitations and the consent qualification.

$$REM = Q_1 \left[\frac{1}{3}(X_1 + X_2 + X_3) \right] L_1 * L_2 * L_3$$

The measure is bounded by 0 and 1 by construction with strong legal remedies being close to 1 and weak legal remedies being close to 0.

3.2 Treaty Strength

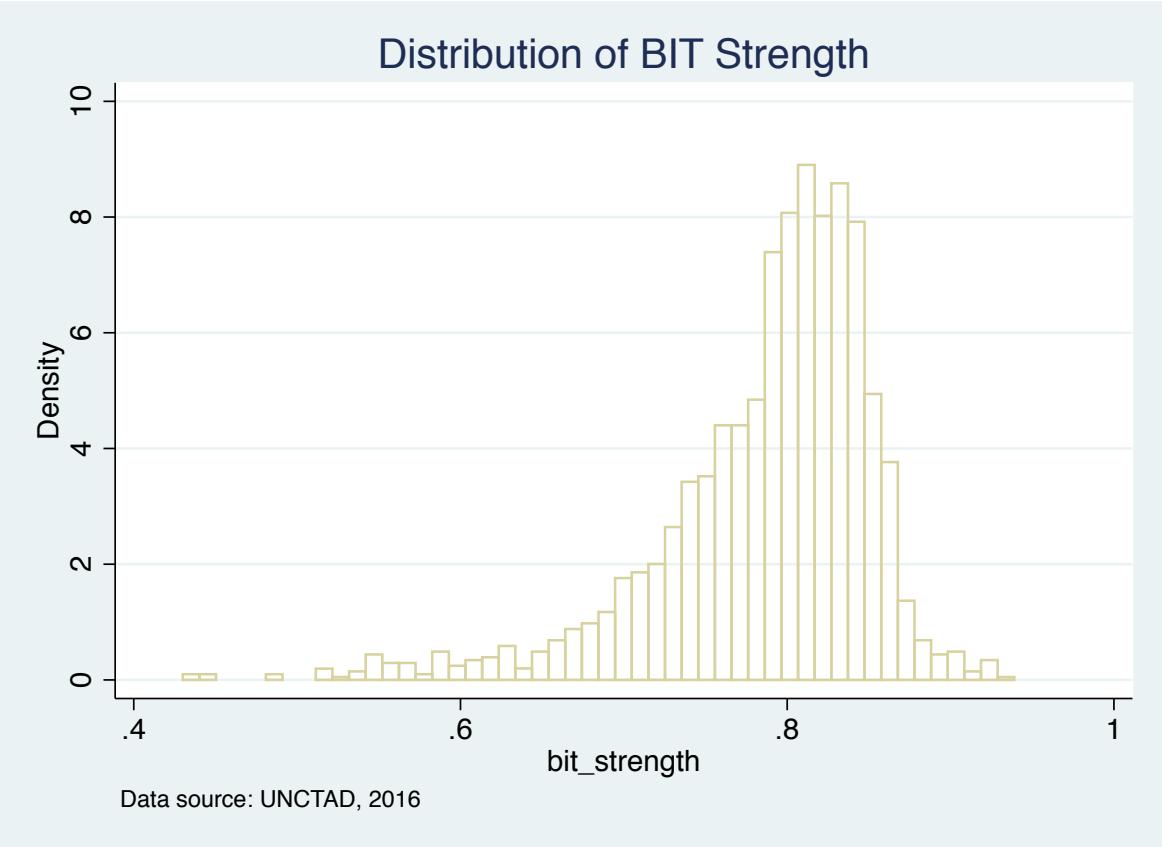
The methodology for calculating the strength of the other four categories in a BIT (DEF, $PROT$, OBL and DUR) is similar to the methodology used to calculate the strength of the legal remedies. Core provisions have a baseline score of 1. For core provisions with

different variations, variations are ordinally ranked by which variation is optimal for an investor and the score is adjusted by 0.1 for each step down in the ranking. Each limitation and exception to a core provision scales the baseline score by 0.9 and the final score is just a simple average of the scores for each core provision, scaled by 0.9 for each category limitation or exception.

Once the strength of each of these categories is calculated, the overall strength of a BIT is calculated by taking a simple average of the strength of each category:

$$BIT = \frac{1}{5}(DEF + PROT + OBL + DUR + REM) \tag{1}$$

Using this methodology I am able to calculate the strength of each BIT and plot the distribution of BITs by treaty strength:



BIT strength is bounded by 0 and 1 (by construction). The distribution has a left tail and a few outliers with weaker protections. Most BITs have a strength measure between 0.7 and 0.85.

The UNCTAD IIA Database and the estimated strength, of both legal remedies specifically and the BIT generally, provide all the elements needed to run reduced form regressions on the strength of legal remedies controlling for the strength of other treaty protections. However, even with this new data in hand, these regressions will not be able

to establish causality due to the two endogeneity concerns discussed in Section 1: (1) the content and timing of a BIT signing will be correlated with investment opportunities between signatories, and (2) the legal remedies are introduced simultaneously with the other treaty protections and so the effect of legal remedies cannot be isolated. The natural experiment described in the following section will be used to get around both of these elements of endogeneity.

4 A Natural Experiment: Mafezzini v. Spain

In 1997 an Argintine investor, Maffezini, filed an arbitration claim against Spain under the Argentina Spain BIT signed in 1991. According to the BIT Maffezini was required to first fully litigate his claim in Spanish Courts before a claim could be brought before an arbitration tribunal. Maffezini cited two facts:

1. Spain had signed a BIT with Chile that did not require Chilean investors to litigate first in domestic courts.

2. The Argentina Spain BIT included a Most Favored Nation (MFN) clause.

Maffezini then argued that the MFN clause in the Argentina BIT allowed him to invoke the better legal remedy in the Chile BIT to avoid litigating first in Spanish courts. In its 2000 decision, the panel of three arbitrators unanimously agreed with Maffezini, thus allowing the claim to move forward.

The MFN doctrine originated in trade law and historically applied to tariffs and tariff reductions. Prior to Maffezini v. Spain it was general understood by policy makers that MFN treatment in the context of investment law was limited in scope to similar substantive protections like taxes and subsidies and did not extend to legal remedies like access to arbitration. After Maffezini v. Spain, investors could now invoke any legal remedy in any investment treaty signed by the host state, rather than relying exclusively on the legal remedies in the treaty with the investor's home country. This unexpected interpretation has two nice features for the econometrician. The first is that it acts like a shock to the investment treaty network and exposure to the shock is not correlated with investment opportunities between the signatories. The second is that the shock only modifies the legal remedies of the treaties and not the other substantive protections in the treaty. Thus this natural experiment eliminates the two endogeneity concerns and presents an opportunity to study the causal effect of legal remedies on firm investment and on host state exposure to arbitration.

To study these two effects I develop a measure of exposure to the treatment of the Maffezini v. Spain decision. This first requires identifying the quality of the legal remedies an investor may invoke against a host country based on the legal remedies in the set of treaties signed by the host country. The method for doing this is described below.

Consider a simple case in which a host country has signed four investment treaties. Table 1 indicates the strength of a particular provision in the actual treaty text in black. The numbers in red indicate the strength of a particular provision after the Mafezzini v. Spain decision, which depends on the strength of the provision across all treaties.

Table 1: Exposure to M. v. Spain

	Treaty 1	Treaty 2	Treaty 3	Treaty 4
Scope (X_1)	1	0.9	0.9	0.8
	1	1	1	1
Forum (X_2)	0.8	0.8	0.8	0.9
	0.9	0.9	0.9	0.9
Forum Interaction (X_3)	0.7	0.8	0.8	0.9
	0.9	0.9	0.9	0.9
Limit on provisions (L_1)	1	1	1	1
	1	1	1	1
Limit on policy (L_2)	0.9	0.9	0.9	0.9
	0.9	0.9	0.9	0.9
Limit on tax (L_3)	0.9	0.9	0.9	1
	1	1	1	1
Consent withheld (Q_1)	1	0.5	1	1
	1	1	1	1
REM (strength)	0.675	0.3375	0.675	0.78
	0.84	0.84	0.84	0.84

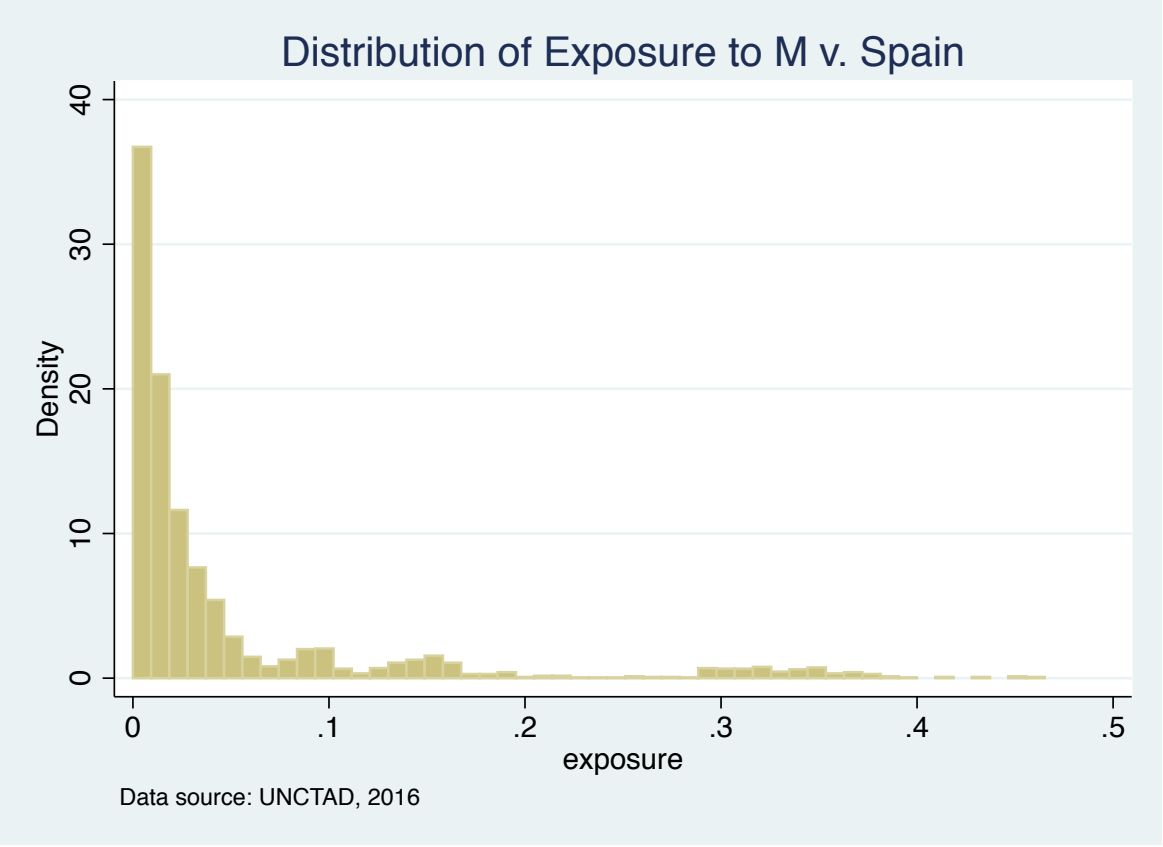
First, note that, conditional on each of the four BITs including a MFN clause, the strength of each provision is uniform across the treaties after Mafezzini v. Spain, where all provisions now take on the highest value in the set of treaties. As a result, the strength of the legal remedies is now the same for all four treaties. Note also that the strength of the legal remedies for all treaties may exceed the strength of the legal remedies in the most protective treaty prior to Mafezzini v. Spain. This is because the most protective treaty may still incorporate a stronger remedy from a relatively weaker treaty. For example, in

Table 1, Treaty 4 has the strongest legal remedies prior to Mafezzini v. Spain. However, it's scope is weak relative to the other treaties in the network. So, after Mafezzini v. Spain the scope has increased from 0.8 to 1, thus scaling up the strength of legal remedies in Treaty 4.

Using the original (REM_o) and modified (REM_m) strength of legal remedies I can now create a measure of exposure to the Mafezzini v. Spain treatment:

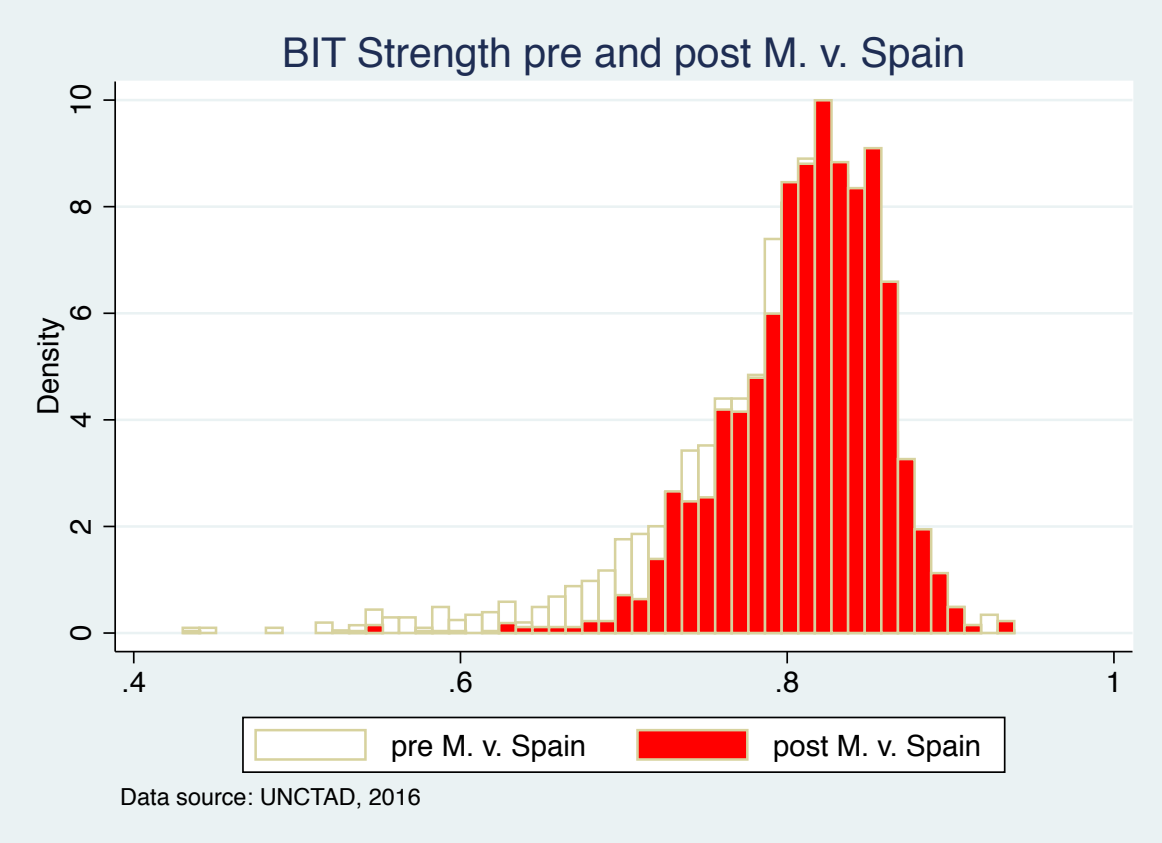
$$EXP = \frac{REM_m}{REM_o} - 1 \tag{2}$$

Using this equation the exposure measures for our four treaties above are 0.24, 1.49, 0.24 and 0.08 respectively. Note that the exposure measure is bounded below by 0 by construction. Note also that, although it is possible for the exposure measure to exceed 1 (as demonstrated by Treaty 2), in the actual data there are no treaties with an exposure measure greater than 1.



The distribution of treaty exposure is plotted above. The distribution is right skewed with a large number of treaties having very little exposure to treatment clumped around zero. The distribution also has a fat right tail, providing evidence that there is a critical mass of treaties whose legal remedies were substantially affected by the shock.

Using the modified measure of the strength of legal remedies following Mafezzini v. Spain I am able to recalculate the overall strength of each treaty. I can then plot the new distribution relative to the prior distribution to get a sense of how the shock has modified the strength of the investment treaty network.



As one would expect, exposure to the shock has shifted the distribution of BIT strength to the right. Also, the left tail of the initial distribution has been almost completely eliminated since these treaties are now being leveled up by the strength of the legal remedies in other treaties in the network.

5 Results

With a measure of exposure to treatment I can now run regressions to study how stronger legal remedies affect both FDI decisions of MNCs as well as host country exposure to arbitration. I find that stronger legal remedies do not increase FDI flows from protected investors. I also find that, although there is no positive effect on FDI, stronger legal remedies do increase a host country's exposure to arbitration, both in terms of the magnitude of the dollar value of the claims and the probability that a claim is brought under

a particular treaty in a particular year. Counter to intuition, this increased exposure to arbitration is more pronounced for host countries with stronger legal institutions, as measured by the Rule of Law measure compiled by the World Bank as part of the World Development Indicators.

Regressions are implemented with three outcome variables: (1) FDI flows, (2) losses claimed in arbitration disputes, and (3) an indicator that an arbitration claim was filed[4]. The precise specification, methodology and findings of each are discussed below. Observations are at the origin-destination-year level. The dataset used in the regressions on FDI includes all country pairs from 1990 to 2015. The dataset used in the regressions on arbitration only includes all country pairs with an active BIT (with public text) at the time Maffezini v. Spain is decided (1302 country pairs) from 1990 to 2015, since country pairs without a BIT will have no arbitration claims by construction.

5.1 Legal Remedies and FDI

The first regression studies the effect of a BIT's exposure to the legal remedy shock in Mafezzini v. Spain on FDI flows between the country pair governed by the BIT. I use the following reduced form gravity model of investment:

$$\log FDI_{ijt} = \beta_1(P_{Mt} * EXP_{ij}) + \beta_2(P_{Bt} * BIT_{ij}) + \alpha' X_{ijt} + \gamma_{ij} + \delta_t + \epsilon_{ijt} \qquad (3)$$

where FDI_{ijt} is the FDI flow from i to j in year t, P_{Mt} is an indicator that the year is after 2000 (i.e. after M. v. Spain), P_{Bt} is an indicator that the year is after the entry into force of the BIT between countries i and j, EXP_{ij} is the exposure of the BIT between countries i and j to treatment by Mafezzini v. Spain and BIT_{ij} is the overall strength of the BIT between countries i and j. X_{ijt} is a set of controls for other tools of global integration (like the signing of an FTA or both countries becoming members of the European Union) that may change over time for a particular country pair. γ_{ij} controls for country pair fixed effects and δ_t controls for time fixed effects.

The regression is implemented using Poisson-Pseudo-Maximum-Likelihood estimation for structural gravity models controlling for country-pair and country-year fixed effects [5]. The regression is done for four different country-pair groupings: (1) all country pairs, (2) country pairs with low quality Rule of Law (i.e. a Rule of Law score below -1 according

[4]Outcome variables are from various databases maintained by UNCTAD.

[5]For a description of this methodology see Zylkin (2017).

to World Bank World Development Indicators), (3) country pairs with average quality Rule of Law (i.e. a Rule of Law score between -1 and 1) and (4) country pairs with high quality Rule of Law (i.e. a Rule of Law score above 1).

Table 2: FDI and Procedural Protections

	(1) FDI (All pairs)	(2) FDI (low RofL)	(3) FDI (mid RofL)	(4) FDI (high RofL)
exposure_interaction	-1.34***	-8.40*	0.057	-1.27**
	(0.38)	(3.61)	(0.54)	(0.47)
strength_interaction	0.27**	-0.70*	0.21	0.30*
	(0.099)	(0.32)	(0.14)	(0.14)
fta	-0.067	-4.07***	-0.053	-0.060
	(0.097)	(0.92)	(0.14)	(0.11)
gatt_both	0.17	-1.34	-0.22	0.27
	(0.30)	(0.84)	(0.21)	(0.37)
com_market	0.62***		0.094	0.63**
	(0.19)		(0.36)	(0.20)
customs_union	0.28	3.30*	0.86*	0.22
	(0.23)	(1.46)	(0.40)	(0.18)
Observations	154905	12782	86509	50546

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

As can be seen in Table 2, the effect of BIT exposure to Mafezzini v. Spain on FDI is statistically significant and negative. [6]. This regression provides strong evidence that better legal remedies in an investment treaty do not cause an increase in FDI from protected investors.

Note that, although the strength of a BIT is positive and statistically significant for the regression on all countries and on country pairs where the host country has high quality legal institutions, this result merely states a correlation in the data and cannot be interpreted as causal. This is because the timing of the signing of a BIT as well as the contents of the BIT are likely correlated with other drivers of investment that are not controlled for in the regression.

5.2 Legal Remedies and Exposure to Arbitration

The second and third regressions study the effect of a BIT's exposure to Mafezzini v. Spain on a country's exposure to arbitration. I consider two measures of exposure to arbitration. The first is the total dollar amount of losses claimed by investors from an origin country against a destination country in a particular year. The second is simply an

[6] After carefully coding BIT terminations and running additional robustness checks the coefficient is no longer negative and is instead statistically equivalent to zero. The robustness checks were completed August 18 and updated tables were not yet complete to be submitted with this draft

indicator variable capturing whether or not any arbitration claims were filed by investors from an origin country against a destination country in a particular year.

I use the following reduced form gravity model of investment:

$$Y_{ijt} = \beta_1(P_{Mt} * EXP_{ij}) + \beta_2(P_{Bt} * BIT_{IJ}) + \alpha' X_{ijt} + \gamma_i + \gamma_j + \delta_t + \epsilon_{ijt} \tag{4}$$

where Y_{ijt} is either the log of the dollar value of claims, or an indicator variable that a claim was filed between an origin and destination pair in a particular year. Note that this specification is almost identical to the specification in Equation 3. The one notable difference is that this specification does not include country-pair fixed effects and country-year fixed effects and instead only includes destination fixed effects, origin fixed effects and time fixed effects. [7] As a result, X_{ijt} now also includes additional variables: log distance, log GDP for both the origin and destination country, and indicators for contiguity, common language, common ethnic origin, colony relationship and a common currency. This vector also includes the five year FDI stock from the origin country in the destination country to control for the amount of assets protected by the treaty.

The regression on the dollar amount of claims is implemented using Poisson-Pseudo-Maximum-Likelihood estimation [8]. The regression on the indicator variable of whether or not a claim was filed is implemented with a Probit regression. Each regression is done for the same country-pair groupings: (1) all country pairs, (2) country pairs with low quality Rule of Law (i.e. a Rule of Law score less than -1), (3) country pairs with average quality Rule of Law (i.e. a Rule of Law score between -1 and 1) and (3) country pairs with high quality Rule of Law (i.e. a Rule of Law score above 1). Note that for both regressions there is insufficient data to estimate coefficients for country pairs with a destination country whose Rule of Law quality is low (less than negative 1).

As can be seen in Tables 3 and 4, higher BIT exposure to Mafezzini v. Spain increases a host country's exposure to arbitration, both in terms of the dollar amount of damages claimed as well as in the probability of a claim being filed. Note that if a country has a mid-level quality of Rule of Law (between -1 and 1) the effect of exposure is not statis-

[7] The reason for this is data limitations. In the arbitration data, most country pairs with an active BIT have never had an arbitration claim filed under the BIT. Thus, if I were to include country pair fixed effects in my regression, more than half of my country pairs would be dropped from the sample, since there is no variation in the amount of damages claimed across the panel for these pairs. When I run the regression with country pair fixed effects I lose enough of the variation so that the model is not able to calculate standard errors for any of the coefficients in the model.

[8] PPML for structural gravity models is no longer necessary since we drop country-pair and country-year fixed effects due to data limitations

Table 3: Claims (USD) and Procedural Protections

	(1) claims USD (All pairs)	(2) claims USD (low RofL)	(3) claims USD (mid RofL)	(4) claims USD (high RofL)
exposure_interaction	6.72**		1.66	7.96**
	(2.43)		(4.29)	(2.74)
strength_interaction	3.26***		2.12*	3.93**
	(0.76)		(0.96)	(1.50)
fta	0.78		0.58	0.81
	(0.57)		(0.89)	(0.76)
gatt_both	-1.31**		-2.65*	-1.52*
	(0.47)		(1.06)	(0.71)
com_market	1.14			1.35
	(0.95)			(0.96)
log_gdp_o	-0.21		0.24	-0.44
	(0.62)		(1.17)	(0.68)
log_gdp_d	2.56*		1.75	2.71
	(1.06)		(1.12)	(1.82)
Observations	32669		8420	15053

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4: Claims (USD) and Procedural Protections

	(1) claims indicator (All pairs)	(2) claims indicator (low RofL)	(3) claims indicator (mid RofL)	(4) claims indicator (high RofL)
exposure_interaction	0.96*		0.83	1.05
	(0.48)		(1.18)	(0.62)
strength_interaction	1.66***		1.71**	1.93**
	(0.39)		(0.64)	(0.61)
fta	0.0022		-0.24	0.11
	(0.10)		(0.21)	(0.13)
gatt_both	-0.11		-0.36	-0.065
	(0.14)		(0.25)	(0.19)
com_market	0.096		0	0.30
	(0.36)		(.)	(0.39)
log_gdp_o	0.11		0.25	0.079
	(0.12)		(0.25)	(0.14)
log_gdp_d	0.36*		0.52*	0.28
	(0.16)		(0.25)	(0.32)
Observations	32669		8420	15053

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

tically different than zero. Even comparing the coefficients for regressions (3) and (4) in each table one can see that the increase in exposure to arbitration is higher if the country has higher quality domestic institutions. This implies that including stronger legal remedies in an investment treaty will likely increase a host country's exposure to arbitration proceedings. This also implies a counter-intuitive result that this exposure will be more pronounced if the domestic legal institutions are of a higher quality.

5.3 Qualifications and Extensions

In this section I discuss the implications and limitations of extending these results in the context of the two broader literatures discussed in Section 1: (1) the role of rule of law in achieving growth and (2) how reducing non-tariff barriers to investment may affect investment decisions of MNCs. First, although stronger legal remedies do not increase FDI from protected investors, institutional quality may still have a first order effect on economic growth. MNCs are a special class of investors that are looking at a global investment market. Even if stronger legal remedies are available, there may still be better investment opportunities in other markets. Small domestic investors have a more narrow investment market and stronger legal remedies may have more of an impact on this class of investors, a question not addressed by this project.

This project also provides evidence that the non-tariff barrier to investment of weak or biased legal institutions does not have a measurable effect on MNC investment decisions. Weak or biased legal institutions are likely secondary concerns relative to more first order considerations of MNCs like access to export markets, cost of inputs, taxes, etc. Although it is plausible that certain industries with high fixed costs of entry and that require a long horizon to realize a profit (i.e. utilities and natural resource extraction) may respond to an improvement in the legal remedies of a BIT, there is no evidence of this in the aggregate macro-level data considered here.

6 Conclusion

This paper introduces a new comprehensive database on the precise content of 2700 BITs. This database is used to exploit a natural experiment caused by an unanticipated arbitration decision in which an arbitration tribunal ruled that an investor may invoke the MFN protection in a BIT to access better legal remedies in other active BITs signed by the host country. Using this natural experiment I find that stronger legal remedies in an

investment treaty do not have a positive effect on FDI. At the same time, stronger legal remedies in a BIT do increase a host country's exposure to arbitration proceedings. This exposure is more pronounced if the host country has high quality rule of law. Together, these two results imply the following: (1) if a developing country chooses to negotiate a BIT with weaker legal remedies, this decision will likely not have a negative effect on the investment decisions of protected MNCs, and (2) these weaker legal remedies may help limit a country's exposure to arbitration proceedings.

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[6] Zylkin, T. (2017). "PPML_PANEL_SG: Stata module to estimate "structural gravity" models via Poisson PML". http://EconPapers.repec.org/RePEc:boc:bocode:s458249. Accessed 27 July 2017.

Appendix A

This Appendix provides a summary of BIT provisions as well as summary statistics of the share of BITs that include a particular variation of a provision.

6.1 Defining investor/investment

All BITs include a definition of who and/or what is protected by the BIT. This definition typically includes a definition of investment and/or a definition of investor.

The broadest formulation of the definition of investment is stated with no qualifications. The definition may be limited in two ways. The first is by excluding specific types of assets from the definition. Examples of excluded assets include portfolio investments (i.e. shares in a company), commercial transactions and non-business real-estate investment. The second way an investment definition may be limited is by including criteria that an investment must satisfy in order to qualify as an investment under the definition in the treaty. These criteria may include a commitment of capital and the assumption of risk or may only include investments that are made in accordance with the laws of the host country.

The definition of investor will typically include a definition for natural persons and a definition for legal entities. The broadest variation of the natural person definition will include both permanent residents and persons with dual nationality. The broadest variation of the legal entity definition will not include any type of criteria the entity must satisfy in order to qualify as a defined investor. Limiting criteria may include the existence of a business activity and/or a requirement of ownership and control over the investment.

The Definitions section of a BIT my be further limited by excluding particular policy actions from the scope of the treaty. Common scope exclusions include taxation, subsidies and grants and government procurement. These limitations mean that a country will be able to pursue these policy actions (i.e. taxation) without risk of being accused of violating the BIT (i.e. no expropriation of an investment).

6.2 Investor Protections

The primary protections in a BIT are (1) protection from discrimination and (2) protection from expropriation.

A BIT may protect investors from discrimination relative to domestic investors through a "National Treatment" (NT) clause. This clause guarantees that investors protected by

the BIT will be treated at least as well by the host government as domestic investors. Similarly, a BIT may protect investors from discrimination relative to other foreign investors through a "Most-Favored-Nation" (MFN) clause. This clause guarantees that protected investors will be treated at least as well by the host government as it treats any other foreign investor. As discussed in this paper, the MFN protection has turned out to be an important component of the BIT network.

The second BIT protection is protection from expropriation, which protects investors from having their assets taken by the host government without due process of law and without prompt and just compensation. There are two variations of the expropriation protection. The first includes a reference to indirect expropriation. The second does not. A reference to indirect expropriation extends the protection to include protection from actions by the host government that may not involve the actual seizure of assets, but still result in depriving the investor of either the value or the control of their assets (i.e. requiring that a majority holding in the asset be transferred to a domestic investor). The expropriation protection may also be limited by including a carve-out for general regulatory measures. This means that general regulatory measures implemented by the host government that may undermine the value of an investment do not qualify as an act of expropriation.

6.3 Host State Obligations

Host State obligations in a BIT may include: (1) compensation for losses, (2) prohibition on performance requirements, (3) allowing the employees of the investor to enter and work in the country, (4) allowing investors autonomy over their choice of senior managers and/or board members, and (5) allowing the free transfer of assets.

Compensation for losses are paid out by the host government in specified circumstances such as armed conflict, civil unrest or natural disasters. This has two common variations. The first is a relative right to compensation. The second is an absolute right to compensation. The relative right to compensation may be relative to either domestic investors (NT), other foreign investors (MFN), or both. An absolute right to compensation, when included in this provision, is typically for losses directly caused by an action of the host government.

The second obligation is to not impose performance requirements on the investor. Performance requirements often involve different restrictive measures designed to ensure that the foreign investment benefits the host economy in a particular way. For example, a

host government may require a foreign investor to use a certain amount of domestic inputs when producing a product or require that a certain share of output be sold in the domestic market. BITs often include a host state obligation to not impose particular performance requirements. There are two variations of this obligation. The first is the incorporation of the provisions of the WTO Agreement on Trade-Related Investment Measures (TRIMs) which lists various performance requirements that are prohibited. The second is an ad hoc listing of various prohibited performance requirements.

The third obligation is to allow the employees of the investor to enter and work in the country. This obligation deals with visa issues and is typically limited to not exceed what current domestic legislation would allow with respect to the entry and work opportunities of foreign employees.

The fourth obligation is allowing investors to choose their senior managers and/or board members. This obligation is typically absolute (i.e. without reference to current domestic legislation). Thus the host state is obligated to honor senior management and board leader appointments by the investor and must help facilitate the visa process for these individuals.

The fifth obligation is allowing investors to freely transfer their assets without undue delays. This obligation may be subject to two qualifications. The first is a balance of payments (BOP) exception. The second is other listed exceptions. The BOP exception allows countries to deviate from the free transfers obligation if it faces a serious balance of payments difficulty. Other listed exceptions may include cases where an investor has filed for bankruptcy or owes money as a result of a judicial or arbitral award.

6.4 Duration

The duration of a BIT depends on the following provisions: (1) the actual duration of the BIT, (2) whether a BIT automatically renews, (3) the method for terminating the BIT, and (4) the amount of time the BIT protections and obligations last after an event of termination. The term of time that the BIT protections are in place may also be modified by (5) limitations to the scope of the BIT.

The duration of a BIT is the length of time the BIT is in force. The period is typically 10 or 15 years but the duration of some BITs may be as long as 20 years. A handful of BITs have an indefinite duration.

Many BITs include an automatic renewal clause that comes into effect after the initial duration of the treaty concludes. There are two common variations of the automatic

renewal clause. The first is automatic renewal of an indefinite duration. The second is automatic renewal of a fixed duration. Renewal of indefinite duration is subject to the right of either party to terminate the treaty as specified in the termination clause. Renewal of a fixed duration typically mirrors the initial duration of the treaty (i.e. 10 or 15 years).

Most BITs specify when and how a BIT may be terminated. This typically includes a time component (i.e. after the BIT has been in force for a certain number of years) and a notice component (i.e. by written notice to the other party). The termination provision will also specify the length of the notice period (i.e. one year's written notice).

A survival clause may also be included to extend certain protections and obligations of the treaty for a certain amount of time after an event of termination. A survival clause will typically specify which protections and obligations are extended and for how long.

Additional provisions that can modify the duration of the treaty are limitations to the temporal scope of the BIT. The two variations of these limitations are (1) limiting the temporal scope of the investments covered and (2) limiting the temporal scope of the disputes covered. Under the first limitation, BIT protections and obligations may only be extended to investments that happen after the BIT enters into force, explicitly to all investments regardless of whether the investment occurred prior to entry into force, or the BIT does not specify either case. Under the second limitation, the signatories may prevent legal claims arising out of actions or disputes that occur prior to the entry into force of the BIT.

6.5 Legal Remedies

Almost all BITs include an investor-state dispute settlement (ISDS) mechanism. This mechanism grants investors the right to enforce the protections and obligations of the BIT themselves rather than needing to rely on their own government to enforce the provisions of the treaty. The ISDS provision typically includes the following elements: (1) a broad definition of the types of claims that can be resolved through ISDS, (2) limitations imposed on that definition, and (3) the forum that can be used for an ISDS proceeding.

6.5.1 Scope of ISDS

There are three broad variations of the types of claims that can be resolved through ISDS. The first is only allowing claims that allege a breach of the BIT. This is the most narrow variation. The second is allowing for other claims that arise under other specific instances

(i.e. a claim arising out of an investment contract with the host government). The third is broadly allowing any dispute arising from an investment to be resolved through ISDS.

6.5.2 Limiting the Scope of ISDS

Once the scope of claims is defined, a BIT may then impose one or more limitations on access to ISDS. First, a BIT may limit claims to only include claims that arise under certain provisions of the BIT (rather than any provision of the BIT). Second, the BIT may exclude certain policy areas from ISDS enforcement. Examples of these exclusions include host government actions related to national security or carve outs of certain economic sectors or industries. Third, the BIT may exclude taxation measures from consideration under ISDS. Fourth, the BIT may prevent claims arising from old disputes (typically disputes that are at least three years old).

One remaining important limitation to the scope of ISDS is when the signatories reserve consent to ISDS. It is common practice for the signatories to explicitly or implicitly give consent to ISDS at the time the BIT enters into force. When a reservation of consent is included in the BIT an investor is not able to bring an ISDS claim against the host government unless the host government first gives permission to the investor to bring the claim. BITs that include this reservation severely limit the ability of an investor to enforce the protections and obligations of the BIT.

6.5.3 ISDS forums

Three different forums are commonly referenced in an ISDS provision: (1) domestic courts, (2) the ICSID Convention, and (3) UNCITRAL.

A BIT may explicitly reference the domestic courts of the host country as a forum to litigate disputes. BITs that include domestic courts may merely include them as a forum option for the investor. Alternatively, the BIT may require that a claim first be litigated in domestic courts before it can be brought before any of the other forums.

The second forum is the International Center for Settlement of Investment Disputes (ICSID). Claims may be submitted to ICSID if both parties to the BIT are parties to the ICSID convention. If only one is a party to the ICSID convention, the dispute may be submitted to the Additional Facility Rules of ICSID.

The third forum is the United Nations Commission on International Trade Law (UNCITRAL). Both the UNCITRAL and the ICSID forums provide a set of rules that the parties to a dispute will follow during the course of the arbitration. These rules include things

like how to choose the arbitrators that will listen to the dispute, what procedural rules must be followed in terms of filing and presenting evidence, calling witnesses, etc.

There are also other forums that may be included in the ISDS provision (i.e. the International Chamber of Commerce, the Arab Investment Court, etc.) although these are much less common.

Many BITs also include a provision that considers interactions between different forums. There are five variations. First, a BIT may not consider interactions between forums. Second, some BITs may include a "fork-in-the-road" provision which requires an investor to choose between domestic courts and international arbitration at the outset of the dispute. If the investor chooses to litigate in domestic court, the investor forfeits it's right to an international arbitration proceeding. Third, BITs may include a "no-U-turn" provision which states that once an investor has begun an international arbitration proceeding it cannot shift back to domestic courts. Fourth, some BITs explicitly allow investors to go to arbitration even after starting local court proceedings as long as the local court has not issued a final judgment. Fifth, some BITs give priority to local remedy procedures over international arbitration.

Provision	BIT Share
Investment Defined	0.986
Limit 1: excluding portfolio	0.006
Limit 2: excluding other assets	0.045
Limit 3: characteristics of investment	0.015
Limit 4: in accordance w/ state laws	0.626
Limit 5: closed list of investment	0.040
Definition of Investor	0.964
Natural Person	0.145
Includes Permanent Residents	0.103
Excludes Double Nationality	0.050
Legal entity limitation	0.238
Business activity requirement	0.147
Ownership and control defined	0.109
Limits to the scope of the BIT	0.137
Limit 1: excludes taxation	0.098
Limit 2: excludes subsidies/grants	0.026
Limit 3: excludes gov. procurement	0.023
Limit 4: excludes other subject matter	0.067
Non-Discrimination: MFN	0.981
Non-Discrimination: NT	0.840
Expropriation	0.988
Limitation 1: indirect expropriation defined	0.051
Limitation 2: carve-out for regulatory measures	0.115

Provision	BIT Share
Compensation for losses	0.951
Variation 1: relative right	0.937
Variation 2: absolute right	0.337
Prohibition on performance requirements	0.081
Variation 1: TRIMs	0.004
Variation 2: ad hoc list	0.059
Entry and sojourn of personnel	0.409
Senior managers and board members	0.073
Free transfer of assets	0.993
Exception 1: BOP	0.125
Exception 2: other	0.124
Duration: <10 years	0.027
Duration: 10 years	0.751
Duration: 15 years	0.137
Duration: 20+ years	0.053
Duration: indefinite	0.030
Automatic renewal	0.966
Variation 1: indefinite	0.634
Variation 2: fixed term <10	0.115
Variation 2: fixed term 10+	0.241
Termination	0.980
Survival Clause <10	0.037
Survival Clause 10	0.565
Survival Clause 15	0.216
Survival Clause 20+	0.158
Temporal scope limitation 1: investments	0.900
Variation 1: post EIF only	0.058
Variation 2: both pre & post EIF	0.838
Variation 3: no specification	0.090
Temporal scope limitation 2: disputes post EIF	0.433

Provision	BIT Share
ISDS Included	0.956
Scope:	0.942
Variation 1: BIT only	0.196
Variation 2: BIT + other	0.029
Variation 3: BIT + any	0.716
Limitation 1: limited provisions	0.061
Limitation 2: policy areas	0.028
Limitation 3: taxation	0.028
Limitation 4: reservation of consent	0.052
Forum 1.1: Domestic court (option)	0.576
Forum 1.2: Domestic court (required)	0.046
Forum 2: ICSID	0.859
Forum 3: UNCITRAL	0.639
Interaction 1: none	0.576
Interaction 2: fork-in-the-road	0.223
Interaction 3: no U-turn	0.048
Interaction 4: preserved right to arbitrate	0.058
Interaction 5: priority for local remedy	0.041

Appendix B

Six different methods of measuring BIT strength were employed as part of this project. All involve, first, ordinally ranking the different variations of each protection. The first four methods assign scores to each variation using different step rules:

- Method 1: 0.1/0.9 - The most favorable variant is assigned a score of 1. Each subsequent variant is decreased by 0.1. Limitations and exceptions are scaled by 0.9. Consent withheld is scaled by 0.5.

- Method 2: 0.2/0.8 - The most favorable variant is assigned a score of 1. Each subsequent variant is decreased by 0.2. Limitations and exceptions are scaled by 0.8. Consent withheld is scaled by 0.2.

- Method 3: 0.5/0.9 - The most favorable variant is assigned a score of 1. Each subsequent variant is decreased by a factor of 0.5 divided by the number of variants V minus 1. For example, if a provision has two variations, the best variant is assigned a score of 1 and the second variant is assigned a score of 0.5. If a provisions has three variations, the best variant is assigned a score of 1, the second variant is assigned a score of 0.75 and the third variant is assigned a score of 0.5, etc. Limitations and exceptions are scaled by 0.9. Arbitration consent withheld is scaled by 0.5.

- Method 4: 0.5/0.8 - The same as Method 3 except limitations and exceptions are scaled by 0.8 and arbitration consent withheld is scaled by 0.2.

Under each of these methods a final score for each category is calculated by taking a simple average of the core provisions and then scaling by the score for the limitations and exceptions. The final score for the overall BIT is calculated by taking a simple average across category scores.

The fifth method simply counts the number of provisions in each category that are the most favorable variant and divides by the total number of provisions in each category. Similar to Methods 1 through 4, the final score is just a simple average of the category scores.

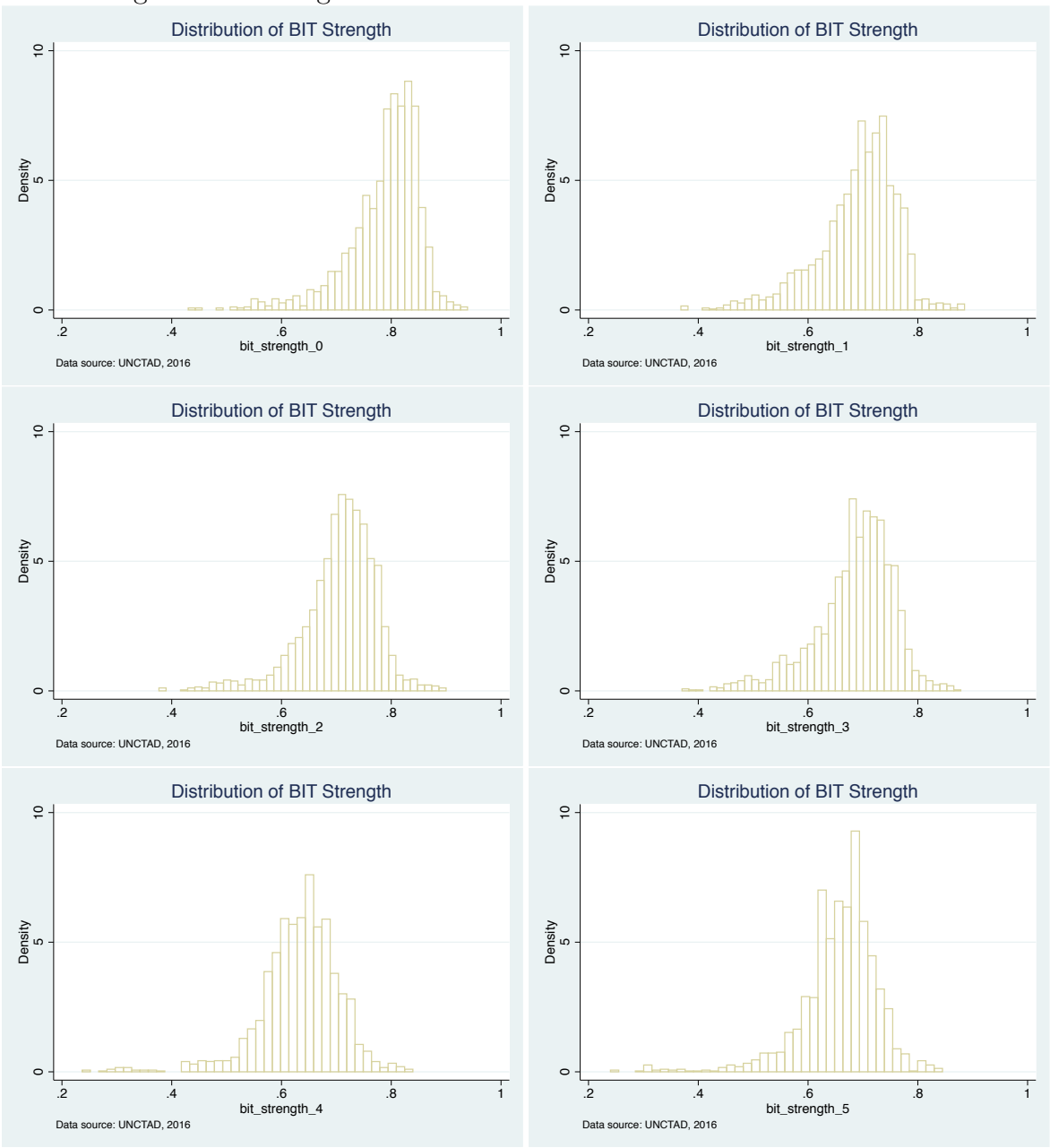
- Method 5: Simple sum with-in category; simple average across categories.

The final method of estimating BIT strength is the most simple. It is just a simple sum of the number of provisions in the BIT that take on the most favorable variation and

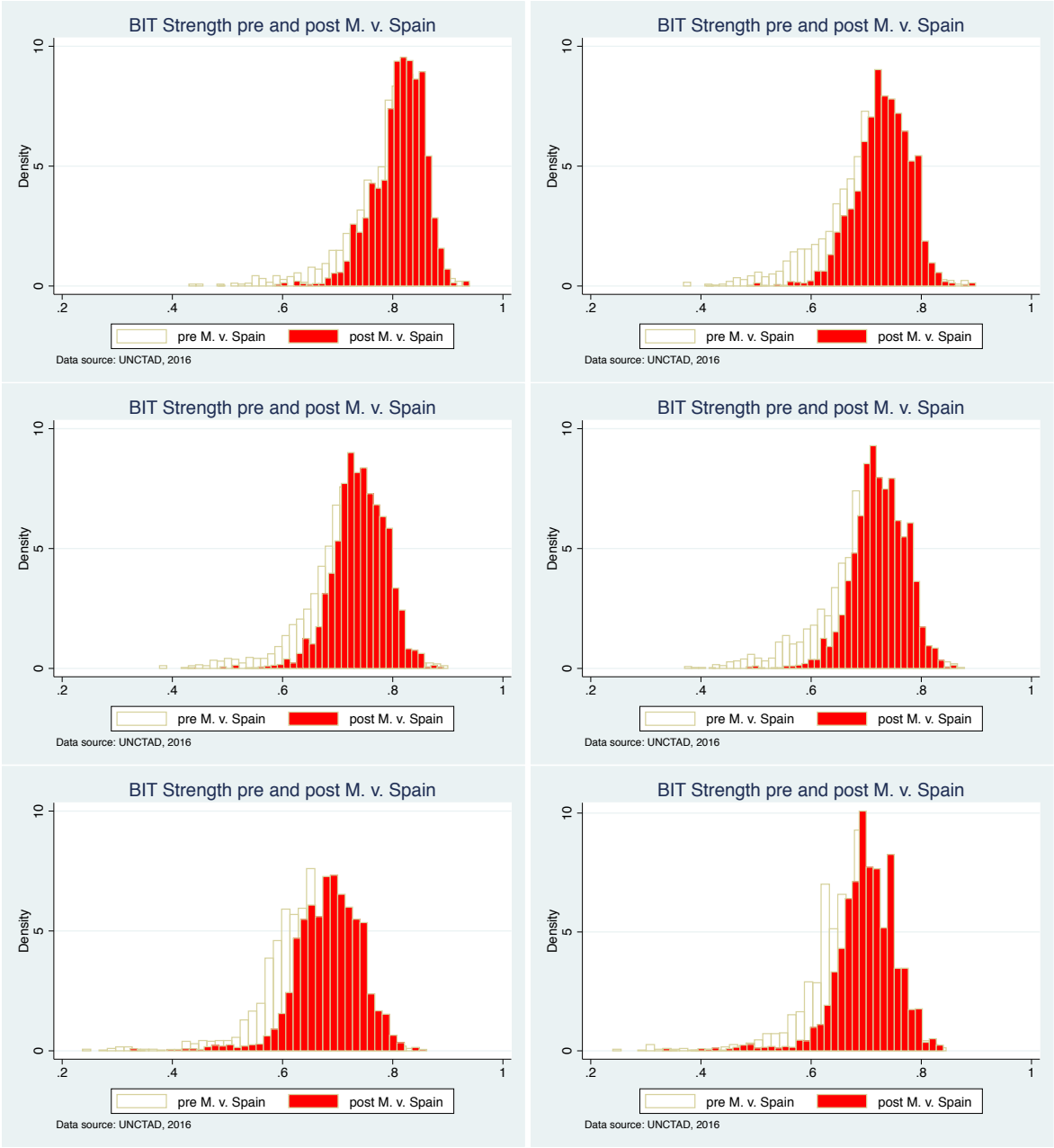
dividing the sum by the total number of provisions (there is no score for each category, rather one raw score across all BIT provisions).

- Method 6: Simple sum across all provisions.

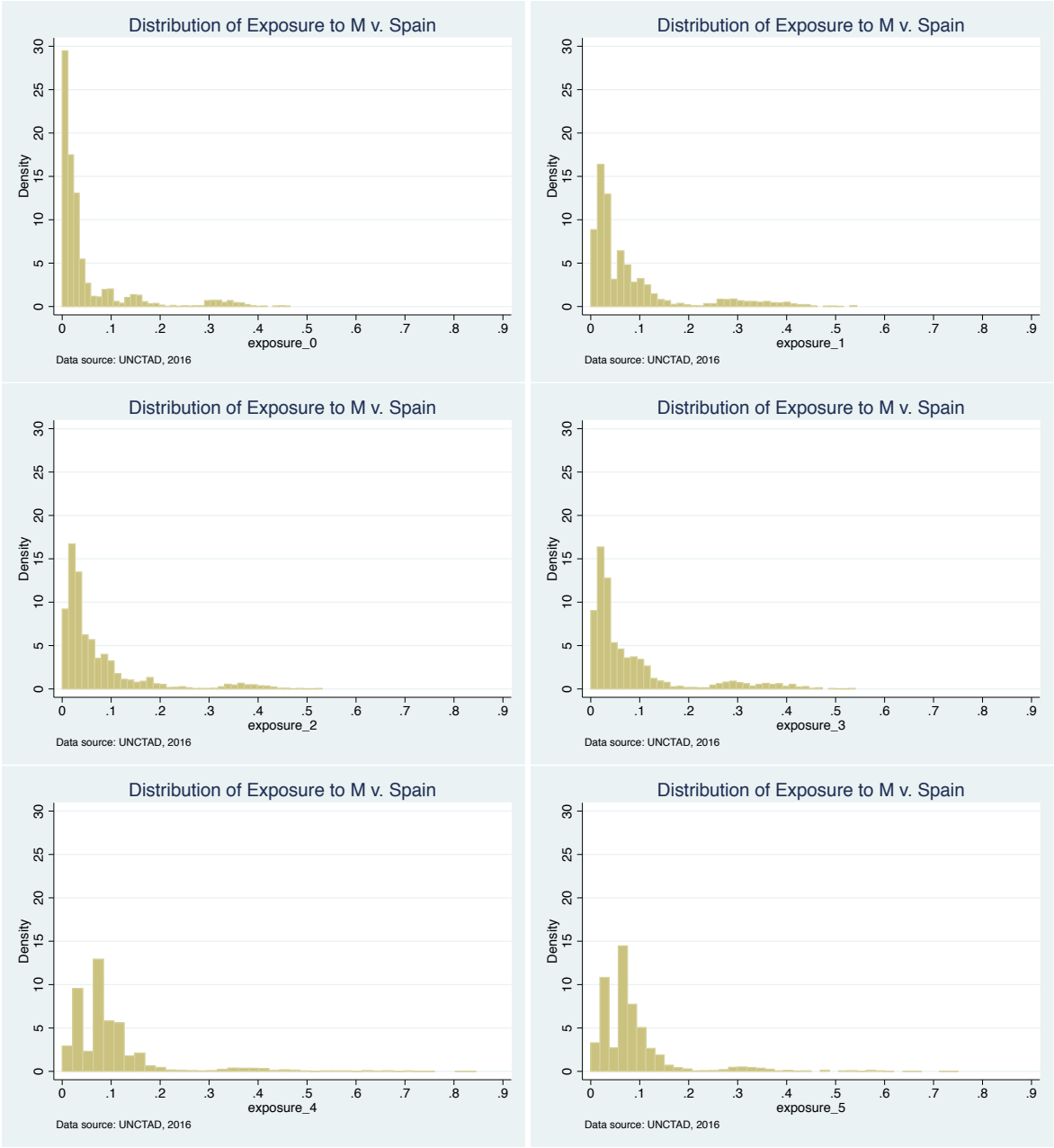
The distributions of BIT strength prior to Mafezini v. Spain for each method are presented in figures B1 through B6.



The shifts in BIT strength distributions after Mafezini v. Spain for each method are presented in figures B7 through B12.



The distributions of exposure to treatment for each method are presented in figures B13 through B18.



The regression results for exposure on FDI for each method are presented in Tables B1 through B6 [9].

[9] All regression tables still need to be updated to include BIT terminations and method of termination

Table B1: FDI and Procedural Protections

	(1)	(2)	(3)	(4)
	fdi_flow_master	fdi_flow_master	fdi_flow_master	fdi_flow_master
fdi_flow_master				
exposure_interaction_0	-1.33***	-7.73*	0.11	-1.27**
	(0.39)	(3.18)	(0.54)	(0.47)
strength_interaction_0	0.27**	-0.70*	0.21	0.30*
	(0.099)	(0.32)	(0.14)	(0.14)
fta	-0.067	-4.05***	-0.053	-0.060
	(0.097)	(0.91)	(0.14)	(0.11)
gatt_both	0.17	-1.35	-0.22	0.27
	(0.30)	(0.84)	(0.21)	(0.37)
com_market	0.62***		0.094	0.63**
	(0.19)		(0.36)	(0.20)
customs_union	0.28	3.29*	0.86*	0.22
	(0.23)	(1.45)	(0.40)	(0.18)
Observations	154905	12782	86509	50546

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B2: FDI and Procedural Protections

	(1)	(2)	(3)	(4)
	fdi_flow_master	fdi_flow_master	fdi_flow_master	fdi_flow_master
fdi_flow_master				
exposure_interaction_1	-1.10***	-4.10	0.19	-1.00*
	(0.32)	(2.29)	(0.47)	(0.40)
strength_interaction_1	0.30**	-0.81*	0.23	0.33*
	(0.11)	(0.36)	(0.16)	(0.15)
fta	-0.065	-4.10***	-0.053	-0.059
	(0.097)	(0.93)	(0.14)	(0.11)
gatt_both	0.18	-1.35	-0.23	0.28
	(0.30)	(0.84)	(0.21)	(0.36)
com_market	0.62***		0.093	0.63**
	(0.19)		(0.36)	(0.20)
customs_union	0.28	3.32*	0.86*	0.22
	(0.23)	(1.46)	(0.40)	(0.18)
Observations	154905	12782	86509	50546

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B3: FDI and Procedural Protections

	(1)	(2)	(3)	(4)
	fdi_flow_master	fdi_flow_master	fdi_flow_master	fdi_flow_master
fdi_flow_master				
exposure_interaction_2	-1.25***	-5.43	0.064	-1.12*
	(0.36)	(2.99)	(0.50)	(0.44)
strength_interaction_2	0.29**	-0.77*	0.25	0.33*
	(0.11)	(0.35)	(0.15)	(0.15)
fta	-0.065	-4.10***	-0.053	-0.059
	(0.097)	(0.93)	(0.14)	(0.11)
gatt_both	0.17	-1.36	-0.22	0.28
	(0.30)	(0.84)	(0.21)	(0.36)
com_market	0.62***		0.093	0.63**
	(0.19)		(0.36)	(0.20)
customs_union	0.28	3.32*	0.86*	0.22
	(0.23)	(1.47)	(0.40)	(0.18)
Observations	154905	12782	86509	50546

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B4: FDI and Procedural Protections

	(1)	(2)	(3)	(4)
	fdi_flow_master	fdi_flow_master	fdi_flow_master	fdi_flow_master
fdi_flow_master				
exposure_interaction_3	-1.09***	-3.76	0.14	-0.98*
	(0.33)	(2.24)	(0.47)	(0.40)
strength_interaction_3	0.30**	-0.82*	0.24	0.34*
	(0.11)	(0.36)	(0.16)	(0.16)
fta	-0.065	-4.07***	-0.053	-0.059
	(0.097)	(0.92)	(0.14)	(0.11)
gatt_both	0.18	-1.35	-0.22	0.28
	(0.30)	(0.84)	(0.21)	(0.36)
com_market	0.62***		0.093	0.63**
	(0.19)		(0.36)	(0.20)
customs_union	0.28	3.30*	0.86*	0.22
	(0.23)	(1.45)	(0.40)	(0.18)
Observations	154905	12782	86509	50546

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B5: FDI and Procedural Protections

	(1)	(2)	(3)	(4)
	fdi_flow_master	fdi_flow_master	fdi_flow_master	fdi_flow_master
fdi_flow_master				
exposure_interaction_4	-0.82*	-3.89	1.04	-0.74
	(0.39)	(3.32)	(0.66)	(0.45)
strength_interaction_4	0.30*	-0.94*	0.23	0.37*
	(0.13)	(0.40)	(0.18)	(0.17)
fta	-0.066	-4.08***	-0.051	-0.060
	(0.097)	(0.93)	(0.14)	(0.11)
gatt_both	0.18	-1.35	-0.24	0.28
	(0.30)	(0.84)	(0.21)	(0.36)
com_market	0.62***		0.085	0.64**
	(0.19)		(0.36)	(0.20)
customs_union	0.28	3.32*	0.85*	0.22
	(0.23)	(1.46)	(0.40)	(0.18)
Observations	154905	12782	86509	50546

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B6: FDI and Procedural Protections

	(1)	(2)	(3)	(4)
	fdi_flow_master	fdi_flow_master	fdi_flow_master	fdi_flow_master
fdi_flow_master				
exposure_interaction_5	-1.01*	-4.36	1.21	-0.93
	(0.44)	(3.85)	(0.78)	(0.52)
strength_interaction_5	0.30*	-0.90*	0.21	0.37*
	(0.12)	(0.37)	(0.17)	(0.17)
fta	-0.066	-4.08***	-0.051	-0.060
	(0.097)	(0.93)	(0.14)	(0.11)
gatt_both	0.18	-1.35	-0.24	0.29
	(0.30)	(0.84)	(0.21)	(0.36)
com_market	0.62***		0.087	0.64**
	(0.19)		(0.36)	(0.20)
customs_union	0.28	3.32*	0.85*	0.22
	(0.23)	(1.46)	(0.40)	(0.18)
Observations	154905	12782	86509	50546

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The regression results for exposure on claims in USD are presented in Tables B7 through B12.

Table B7: Claims (USD) and Legal Remedies

	(1) claims USD	(2) claims USD	(3) claims USD
exposure_interaction_0	6.59**	1.66	7.90**
	(2.42)	(4.29)	(2.74)
strength_interaction_0	3.26***	2.12*	3.94**
	(0.76)	(0.96)	(1.51)
fta	0.78	0.58	0.81
	(0.57)	(0.89)	(0.76)
gatt_both	-1.30**	-2.65*	-1.52*
	(0.47)	(1.06)	(0.71)
com_market	1.14		1.35
	(0.95)		(0.96)
log_gdp_o	-0.21	0.24	-0.44
	(0.62)	(1.17)	(0.68)
log_gdp_d	2.55*	1.75	2.71
	(1.05)	(1.12)	(1.82)
Observations	32669	8420	15053

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B8: Claims (USD) and Legal Remedies

	(1) claims USD	(2) claims USD	(3) claims USD
exposure_interaction_1	4.20*	3.49	5.21**
	(1.63)	(3.12)	(1.93)
strength_interaction_1	2.65***	1.80	3.14**
	(0.64)	(1.07)	(1.06)
fta	0.78	0.57	0.81
	(0.58)	(0.89)	(0.77)
gatt_both	-1.31**	-2.65*	-1.51*
	(0.47)	(1.08)	(0.72)
com_market	1.16		1.37
	(0.95)		(0.97)
log_gdp_o	-0.19	0.27	-0.41
	(0.63)	(1.16)	(0.69)
log_gdp_d	2.59*	1.75	2.81
	(1.06)	(1.11)	(1.86)
Observations	32669	8420	15053

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B9: Claims (USD) and Legal Remedies

	(1) claims USD	(2) claims USD	(3) claims USD
exposure_interaction_2	5.65**	4.04	6.70**
	(2.13)	(3.85)	(2.46)
strength_interaction_2	2.42***	1.51	2.81**
	(0.58)	(0.88)	(0.89)
fta	0.77	0.56	0.80
	(0.58)	(0.89)	(0.77)
gatt_both	-1.30**	-2.64*	-1.50*
	(0.47)	(1.07)	(0.72)
com_market	1.17		1.38
	(0.96)		(0.97)
log_gdp_o	-0.20	0.28	-0.42
	(0.62)	(1.16)	(0.67)
log_gdp_d	2.57*	1.75	2.71
	(1.05)	(1.10)	(1.83)
Observations	32669	8420	15053

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B10: Claims (USD) and Legal Remedies

	(1) claims USD	(2) claims USD	(3) claims USD
exposure_interaction_3	4.11*	3.28	5.03**
	(1.63)	(3.14)	(1.92)
strength_interaction_3	2.25***	1.54	2.61***
	(0.55)	(0.92)	(0.78)
fta	0.77	0.57	0.81
	(0.58)	(0.88)	(0.78)
gatt_both	-1.32**	-2.66*	-1.50*
	(0.47)	(1.08)	(0.72)
com_market	1.16		1.37
	(0.96)		(0.97)
log_gdp_o	-0.19	0.27	-0.41
	(0.63)	(1.16)	(0.69)
log_gdp_d	2.60*	1.75	2.81
	(1.05)	(1.10)	(1.86)
Observations	32669	8420	15053

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B11: Claims (USD) and Legal Remedies

	(1) claims USD	(2) claims USD	(3) claims USD
exposure_interaction_4	3.62*	3.45	3.83
	(1.79)	(2.56)	(2.45)
strength_interaction_4	2.31***	0.35	3.16**
	(0.70)	(0.93)	(1.16)
fta	0.76	0.53	0.80
	(0.56)	(0.88)	(0.74)
gatt_both	-1.33**	-2.71*	-1.50*
	(0.47)	(1.08)	(0.72)
com_market	1.20		1.39
	(0.96)		(0.98)
log_gdp_o	-0.21	0.30	-0.44
	(0.61)	(1.17)	(0.67)
log_gdp_d	2.52*	1.76	2.49
	(1.02)	(1.06)	(1.75)
Observations	32669	8420	15053

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B12: Claims (USD) and Legal Remedies

	(1) claims USD	(2) claims USD	(3) claims USD
exposure_interaction_5	4.23*	4.19	4.53
	(2.13)	(3.02)	(2.86)
strength_interaction_5	2.50***	0.27	3.47**
	(0.74)	(0.87)	(1.34)
fta	0.76	0.53	0.80
	(0.56)	(0.88)	(0.74)
gatt_both	-1.33**	-2.71*	-1.50*
	(0.46)	(1.08)	(0.73)
com_market	1.19		1.37
	(0.96)		(0.97)
log_gdp_o	-0.21	0.30	-0.44
	(0.61)	(1.17)	(0.67)
log_gdp_d	2.51*	1.76	2.49
	(1.02)	(1.06)	(1.76)
Observations	32669	8420	15053

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The regression results for exposure on an indicator of a claim being filed are presented in Tables B13 through B18.

Table B13: Claims (Indicator) and Legal Remedies

	(1) claims (I)	(2) claims (I)	(3) claims (I)
Frequency			
exposure_interaction_0	0.92	0.84	1.01
	(0.48)	(1.18)	(0.62)
strength_interaction_0	1.65***	1.71**	1.92**
	(0.39)	(0.64)	(0.61)
fta	0.0023	-0.24	0.11
	(0.10)	(0.21)	(0.13)
gatt_both	-0.11	-0.36	-0.065
	(0.14)	(0.25)	(0.19)
com_market	0.096	0	0.30
	(0.36)	(.)	(0.39)
log_gdp_o	0.11	0.25	0.079
	(0.12)	(0.25)	(0.14)
log_gdp_d	0.36*	0.52*	0.28
	(0.16)	(0.25)	(0.32)
Observations	32669	8420	15053

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B14: Claims (Indicator) and Legal Remedies

	(1) claims (I)	(2) claims (I)	(3) claims (I)
Frequency			
exposure_interaction_1	0.85*	1.21	0.83*
	(0.33)	(0.83)	(0.41)
strength_interaction_1	1.61***	1.80**	1.78***
	(0.34)	(0.63)	(0.49)
fta	0.0029	-0.24	0.11
	(0.10)	(0.21)	(0.13)
gatt_both	-0.10	-0.36	-0.062
	(0.14)	(0.25)	(0.19)
com_market	0.096	0	0.31
	(0.36)	(.)	(0.39)
log_gdp_o	0.11	0.25	0.078
	(0.12)	(0.25)	(0.14)
log_gdp_d	0.37*	0.53*	0.29
	(0.16)	(0.25)	(0.32)
Observations	32669	8420	15053

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B15: Claims (Indicator) and Legal Remedies

	(1) claims (I)	(2) claims (I)	(3) claims (I)
Frequency			
exposure_interaction_2	0.68	1.23	0.58
	(0.40)	(0.93)	(0.51)
strength_interaction_2	1.53***	1.63**	1.84***
	(0.33)	(0.56)	(0.52)
fta	0.0051	-0.24	0.11
	(0.10)	(0.21)	(0.13)
gatt_both	-0.11	-0.35	-0.065
	(0.14)	(0.25)	(0.19)
com_market	0.094	0	0.31
	(0.36)	(.)	(0.39)
log_gdp_o	0.11	0.25	0.077
	(0.12)	(0.25)	(0.14)
log_gdp_d	0.37*	0.53*	0.27
	(0.16)	(0.25)	(0.32)
Observations	32669	8420	15053

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B16: Claims (Indicator) and Legal Remedies

	(1) claims (I)	(2) claims (I)	(3) claims (I)
Frequency			
exposure_interaction_3	0.80*	1.21	0.79*
	(0.32)	(0.81)	(0.39)
strength_interaction_3	1.49***	1.70**	1.70***
	(0.31)	(0.58)	(0.46)
fta	0.0050	-0.24	0.11
	(0.10)	(0.21)	(0.13)
gatt_both	-0.10	-0.36	-0.062
	(0.14)	(0.25)	(0.19)
com_market	0.093	0	0.30
	(0.36)	(.)	(0.39)
log_gdp_o	0.11	0.25	0.077
	(0.12)	(0.25)	(0.14)
log_gdp_d	0.38*	0.53*	0.29
	(0.16)	(0.25)	(0.32)
Observations	32669	8420	15053

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B17: Claims (Indicator) and Legal Remedies

	(1) claims (I)	(2) claims (I)	(3) claims (I)
Frequency			
exposure_interaction_4	0.10	0.81	-0.24
	(0.39)	(0.83)	(0.50)
strength_interaction_4	1.63***	1.61**	1.99***
	(0.33)	(0.54)	(0.51)
fta	0.0083	-0.25	0.12
	(0.10)	(0.21)	(0.13)
gatt_both	-0.11	-0.35	-0.070
	(0.14)	(0.25)	(0.19)
com_market	0.087	0	0.30
	(0.36)	(.)	(0.39)
log_gdp_o	0.11	0.25	0.079
	(0.12)	(0.25)	(0.14)
log_gdp_d	0.37*	0.54*	0.26
	(0.16)	(0.25)	(0.32)
Observations	32669	8420	15053

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B18: Claims (Indicator) and Legal Remedies

	(1) claims (I)	(2) claims (I)	(3) claims (I)
Frequency			
exposure_interaction_5	0.10	0.95	-0.31
	(0.45)	(0.98)	(0.56)
strength_interaction_5	1.56***	1.63**	1.80***
	(0.32)	(0.55)	(0.48)
fta	0.0073	-0.25	0.12
	(0.10)	(0.21)	(0.13)
gatt_both	-0.11	-0.36	-0.070
	(0.14)	(0.25)	(0.19)
com_market	0.085	0	0.30
	(0.36)	(.)	(0.39)
log_gdp_o	0.11	0.25	0.079
	(0.12)	(0.25)	(0.14)
log_gdp_d	0.37*	0.54*	0.26
	(0.16)	(0.25)	(0.32)
Observations	32669	8420	15053

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$