

TO SETTLE OR TO FIGHT TO THE END? CASE-LEVEL DETERMINANTS OF EARLY SETTLEMENT OF INVESTOR-STATE DISPUTES

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To Settle or to Fight to the end?

Case-level Determinants of Early Settlement of Investor-State Disputes

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Abstract

International investment arbitration is a third-party dispute resolution mechanism aimed mainly at depoliticizing investment disputes and maintaining efficient investment flows among countries. Almost one-third of treaty-based investor-state disputes brought before this system are settled before the tribunal's final ruling. Given the classical "Against Settlement" debate in the legal literature, we build an original database of treaty-based arbitrations from 1996 to 2016 to empirically test the determinants of early settlement. We find that the probability of settlement increases if the host state has no experience of resolving those kinds of disputes but decrease if it anticipates a favorable outcome. The nature of the regulatory measures applied by the host state and the identity of foreign investors are additional important determinants of settlement. Interestingly, we find strong evidence of a *Dutch* effect in dispute resolution.

Keywords: Investor-State dispute, arbitration, settlement.

JEL Classification: F21, F23, K33, K41

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1 Introduction

Globalization has led to many changes in international economic activities, the most evident being the movement of investment and trade flows across countries. Some countries are expanding their markets while others are attracting foreign investors with new technology and knowledge. This change is imposing certain difficulties. On the one hand, capital exporting countries may worry about the security of their investment flows, particularly in emerging markets with potential macroeconomic and political risks. On the other hand, capital receiving countries may need to find ways to implement national public policies (e.g. higher environmental standards for mining-quarrying or energy projects) while also securing the international investment. These issues make the transfer of funds more complex and lengthy in the absence of an agreement on investment protection between the countries (e.g. bilateral investment treaty - BIT). BITs provide the conditions for host countries to both receive the foreign investors and protect their own national interests. They provide a mechanism to resolve disputes between the host state and foreign investors, e.g. access to international investment arbitration such as the International Centre for Settlement of Investment Disputes (ICSID).

International investment arbitration is a third-party dispute resolution mechanism whose main purpose is to depoliticize investment disputes and maintaining efficient investment flows. The system does not require a foreign investor to petition its home state in order to bring claims against the host state, and provides an alternative to resolving investment disputes in the host state's local court. In general, international investment arbitration can resolve any investment disputes where both parties agree to submit to the system e.g. via a contract, a national law or an international investment treaty. The general procedures to resolve a dispute before international investment arbitration can be summarized as: (1) the claimant (generally a foreign investor) files a request for arbitration with the tribunal, (2) the tribunal examines its jurisdiction and ability to hear the claim, (3) if the tribunal has the appropriate competence, it will proceed to examination of the merits of the case to determine the defendant's (generally the host state) liability, and damages/compensation if the defendant is found liable.¹ Although the claim has been

1. Some proceedings are joint proceedings on jurisdiction and on merits. See Arbitration Rule 41 of the Convention on the settlement of investment disputes between states and nationals of other states (the ICSID Convention).

filed with the tribunal, both parties can discontinue the case at any time if they reach agreement (in other words, agree to an early settlement).

Whether to settle or to fight to the end is a classical question raised in the interdisciplinary literature and has received much scholarly attention. In 1984, Fiss (1984) outlined his “Against Settlement” opinion. He considers that there are two main reasons against settlement. First, a settlement is simply anticipation of the trial outcome and the settlement terms are the product of this prediction; meanwhile, “justice may not be done” (Fiss 1984, p.1075). Second, settlement is not always true agreement in the sense that there can be disparities in resources of the parties (i.e. coerced consent). However, economists argue that lengthy litigation creates transaction costs that can be avoided by an early settlement, and that is advantageous to both parties. When discussing the social welfare related to a settlement, economists agree also that this kind of consent reduces the social costs considerably because less public money is expended on continuing the lawsuit and more time is available for other activities (Bronsteen 2009).

Settlement of disputes between host states and foreign investors in the context of international investment, reflects both points of view. On the one hand, a settlement sometimes is preferable to reduce time costs of international investment arbitration. Early settlement is a good solution which allows the foreign investor to resume its long-term projects in the host country, and allows the host state to “protect” its credibility for future investors (Allee and Peinhardt 2011). On the other hand, as Fiss (1984) suggests, a secret settlement deprives the tribunal of the opportunity to clarify legal principles. In addition, early settlement of a treaty-based dispute (or a dispute involving violation of international obligations) can be questionable because in that case, the host state is considered not as an ordinary commercial partner but as a government entity with rights to regulate and protect the public interest. This problem arises if a policy that favors the public interest has negative impacts on the foreign investor’s project.² Also, some countries such as Argentina, Venezuela,

2. An example of a controversial settlement in the legal literature is that of Ethyl, a large US chemical corporation which in 1997 submitted a high-value claim against Canada following a ban on imports of the gasoline additive methylcyclopentadienyl manganese tricarbonyl (MMT), a suspected neurotoxin. This environmental case terminated with a settlement in which the government repealed the ban and agreed to pay compensation. For more information see: https://www.huffingtonpost.ca/2015/01/14/canada-sued-investor-state-disputeccpa_n_6471460.html?guccounter=1. Accessed July 25, 2019.

Bolivia, Australia, etc., have expressed their discomfort with investor-state disputes by the application of radical exit solutions³ which could trigger systemic collapse of the international investment regime.

Before addressing the question of whether early settlement of an investor-state dispute should be preferred, it is important to understand the nature of the kind of negotiation involved e.g. its determinants. This is the objective of the present study. We would highlight some methodological considerations that support our arguments.

First, the tribunal’s decision-making and the parties’ decision to settle or to litigate are two major issues in the law and economics literature on litigation which have so far not been studied in depth at the international level. While a few empirical studies address the first issue in the context of international investment (Franck 2009; Harten 2012; Simmons 2014),⁴ the second has been left open for future theoretical and empirical research.⁵ Second, our study focuses on alternative dispute resolution (ADR) i.e. arbitration. However, the literature on settlement using ADR is incomplete although the focus on arbitration has increased, especially in the commercial field. Although arbitration and court proceeding are relatively different concepts (Deffains et al. 2017), arbitration perhaps could be considered as a simplified version of litigation before a court, involving simplified procedural rules.⁶ For instance, the pattern of the settlement during an arbitral process (occurring after the dispute is registered but before publication of the panel’s final judgment) is analogous, in terms of the costs and benefits, to a situation of settlement before “trial” in the domestic litigation literature. For all the above reasons, we link settlement/litigation theory which is well developed in the domestic context to empirical work on international adjudicatory systems.

3. E.g. denunciation of the ICSID Convention, rejection of investor-state dispute settlement provisions and unilateral denunciation of investment treaties.

4. See Vu (2019) for a brief review of the literature on international investment arbitration.

5. Besides some papers applying descriptive statistics, Hafner-Burton and Victor (2016) is an exception. They address the question of settlement/litigation indirectly by tackling the question of why the contents of disputes (and especially disputes settled early by the parties) are not made public. They study only cases administered by ICSID. In the succeeding sections of this paper, we highlight the main differences, especially in terms of methodology, between our study and Hafner-Burton and Victor’s (2016) work.

6. For more details see https://www.law.cornell.edu/wex/alternative_dispute_resolution. Accessed July 25, 2019.

We start our identification of theoretical determinants by drawing on the basic settlement bargaining literature, especially work on informational asymmetry between the parties⁷ (Bebchuk 1984; Spier 1992; Che and Yi 1993; Daughety and Reinganum 2002). For example, the “litigation costs” in these models can be generalized by assessing the host state’s arbitration experience, the identity of the investors or the type of treaty being violated by the host state;⁸ the estimated compensation can be proxied by observing the nature of the regulatory measures applied by the host state. Further, the law and economics literature predicts the role of legal precedents on parties’ decision-making – a notion that is captured also in our research.

The inclusion of these determinants in a Probit model yields many interesting findings. First, we find that a host state lacking previous experience of resolving treaty dispute tends to settle early. Second, if the host state anticipates a favorable outcome, based especially on observing the outcomes of similar disputes in the same geographic region, it will be less likely to choose early settlement. Third, an extreme regulatory measure which deprives investors of fundamental activities can be a reason for settlement breakdown. Fourth, compared to corporate investors, individual investors are more likely to await a final ruling than to settle early. Finally, there is evidence that the probability of early settlement is higher if the investor invokes the protection of Dutch bilateral investment treaties.

The above aspects are considered in what follows. Section 2 reviews the background literature and hypothesizes about the determinants. Section 3 describes the original database, the econometric strategy and presents the empirical results. We also provide in this section some robustness checks for our findings and address the question of endogeneity. Section 4 concludes and discusses directions for further research.

7. Although it is not always easy in practice to apply all the assumptions of the theoretical models, this literature seems appropriate for application to our context. E.g. asymmetric information is a viable hypothesis because only the host country knows the true purpose of application of its regulatory measure to the investor’s project (an environmental policy to protect the public interest or only a discriminatory measure with commercial effects).

8. E.g. it takes more time and more public money for states to defend breaches of treaties with *pro-investor* provisions.

2 Background literature and hypotheses

2.1 Host state and arbitration experience

In the context of international investment arbitration, respondent (or host) states have the possibility to become skilled players, e.g. the cases of Argentina and Venezuela which attract the most arbitration claims. The number of claims related to Latin American countries has exploded since the 2000s with the result that some countries such as Bolivia, Venezuela and Ecuador decided to leave the international investment arbitration system by denouncing many bilateral investment treaties and the ICSID Convention.

Some studies emphasize that the skills of the parties to the dispute have a substantial effect on their decisions in a dispute. Chopard et al. (2010) develop Bebchuk's (1984) model to explain the probability of settlement. They assume that parties have different skills and abilities (e.g. information technology and evidence production) to predict the outcome of a trial. Using the difference between the defendants' legal expenditures to proxy for differences in litigation skills, the model predicts that cases where the defendants have higher legal expenditures or equivalently, inefficient information technology are likely to be settled early. Other authors insist also on the importance of litigation skills to prevent miscalculation of settlement offers (Cooter et al. 1982).

What makes a skilled party is quite straightforward. It can be argued that legal counsel quality matters. However, in the present article, we investigate a "natural" answer, that is "training" produces a skilled party. Achieving litigation training requires repeated experience of litigation. In this study we are interested in the difference between being a skilled and a non-skilled party, and how this difference affects the settlement of disputes between host states and foreign investors. The literature proposes two arguments.

First, it has been argued that some countries accumulate experience of dispute resolution from being sued repeatedly by foreign investors. Host countries that have not been targeted by arbitration claims retain their credibility for the foreign investor. A claim filed before arbitration can be considered a noisy signal of non-commitment to international obligations. This evidence of lack of adherence to international obligations is exacerbated if the host state loses a case since this provides more precise information to investors about the definitive illegality of the

state’s actions (Allee and Peinhardt 2011). A direct effect of arbitration claims on the state’s credibility is the behavior of co-national investors which show reluctance to continue to invest in the country (Wellhausen 2016b). Empirically, losing a dispute is equivalent to losing the gains obtained from signing numerous BITs.⁹ While winning a case has an ambiguous effect on the country’s credibility,¹⁰ it is reasonable to suppose that if the host state has no past experience of resolving an arbitration claim, it may prefer a neutral solution that is early settlement. Given the “advantage” conferred by settlement deeds of disputes brought before international investment arbitration not being made public,¹¹ one cannot, as Daughety and Reinganum (2002, p.589) suggest, “infer extreme culpability from observing a confidential settlement”. The effect of international arbitration on the country’s credibility is thus more lenient compared to if all outcomes are made public.

Second, the respondent state with experience of resolving a dispute with a foreign investor is expected to understand how an arbitration proceeding works. This could affect the respondent’s overall litigation transaction costs (e.g. the ability to produce and prepare efficiently information and evidence). If arbitration experience helps to reduce such transaction costs, an experienced state will be expected more often to wait for a final judgment, *ceteris paribus*. We thus hypothesize that:

Hypothesis 1: *If the host state has no past experience of resolving treaty disputes, it is more likely to choose early settlement of a given dispute.*

2.2 Prospect of the case

The host state’s experience of resolving investment disputes is expected to be a determinant of early settlement. However, the prospect related to winning the case is also important, and influences the parties’ decision to continue to final ruling.

9. Although these studies focus on the impact on the credibility of developing countries, developed countries are affected also since they are destinations for international investment flows. The majority of respondent states are developing countries, but the database used in this paper includes several developed countries such as Australia, Belgium, Canada, Germany and the United States. The foregoing theoretical framework should apply, irrespective of the status of countries receiving the foreign investment.

10. Allee and Peinhardt (2011) find no statistically significant effect of an increase in FDI following a state win in a dispute with investors.

11. Hafner-Burton and Victor (2016) based on ICSID data found that only 6 percent of settlement deeds were made public.

According to Che and Yi (1993) and Daughety and Reinganum (2002), if the respondent state assesses that the prospect of a current dispute is unfavorable for some reason, it might push for early settlement, especially if there are other investors in line for similar disputes. The reason is straightforward: the state will be unwilling to set a series of bad precedents (precedent effect). In addition, the state may want to settle secretly if it anticipates an unfavorable outcome simply because losing a case brought before the tribunal harms the country’s credibility (reputation effect). However, Che and Yi (1993) also emphasize setting a favorable precedent, and especially if the disputed issue involves broad public interests. Thus, the prospect of a dispute (or simply the outcome anticipated by the respondent state) is expected to have a substantial effect on the choice of early settlement (Fenn and Rickman 1999) even in the context of international investment arbitration. However, how to observe and measure a case’s prospect is not straightforward.

Since alongside the facts of a given dispute precedents also are an important (but not obligatory) source of legal reasoning in arbitral tribunals, it is reasonable to assume that the host state can rely on information from previous disputes to evaluate its chance in a new case (Böckstiegel 2012). As numerous disputes are filed every year, what type of information is important? It is clear that just because a host state has lost in successive previous arbitrations does not mean that the prospect of the present case is necessarily bad since it depends fundamentally on the facts of the case. Perhaps one should consider previous disputes that are similar to the present case, for example previous cases concerning the same kind of regulatory measures applied by the host state. For instance, if a dispute involves the state nationalization policy, then the state could search for precedents related to this policy to identify the overall “trend” in arbitration. This leads to the following hypothesis:

***Hypothesis 2:** If based on precedents related to the same regulatory measures, the prospect of the case is not favorable, the probability of early settlement with the foreign investor increases. Conversely, if the prospect of the case is favorable, this probability decreases.*

2.3 Nature of the dispute

Investor-state disputes arise as a result of the regulatory measures applied by the host state. These measures can have impacts on the general execution of the

contract between the parties, private property rights or the investor’s production process. However, a closer look at the nature of these measures shows that the severity of their impact on the investor’s project is different. Some measures will have an extreme effect on the investor’s project, for example they might cause the contractual relationship to end, or might deprive the foreign investor of its main production activities. Others may seem less radical, and leave room for the parties to renegotiate. How does the severity of a regulatory measure affect the settlement of a dispute? The literature proposes answers from both sides of the dispute.

First, from the foreign investor’s side, a measure that has extreme effects on the private investment for example contract cancellation or direct expropriation, is expected to lead to high value damages for the investor if it wins the dispute.¹² According to Bebchuk (1984) and Fenn and Rickman (1999), expectation of a high level of compensation will lead to more demands from the investor during the negotiation process and reduce the likelihood of early settlement.

Second, filing a dispute before international investment arbitration can act as a warning signal about the host country’s violations (Hafner-Burton and Victor 2016). Furthermore, if the case involves a measure that is likely to infringe on the investor’s major interests, leading to arbitration rather than consensual settlement is not only to establish a favorable precedent, but also to create new “rules” that will favor subsequent projects by limiting any repeat violations. This argument is supported by a psychological framework which with some caveats could be extended to our context. According to Korobkin and Guthrie (1994, p.147), relational factors can play a role in settlement failure: if a litigant feels it has been treated badly by its partner, the chances of successful settlement will decrease because the litigant will seek “retaliation or vindication of [its] moral position in addition to monetary damages”. This results in a less risky trial for that litigant. In our case, the notion of “retaliation” may be overstated but the underlying argument is that investors may seek to restore “equity” to an inequitable relationship. Although an extreme regulatory policy could be remedied economically by the host state, it is possible that the investor might behave “irrationally”, and thus, the settlement rate is low.

12. The value of damages following an extreme measure is in comparison with one following a less-extreme measure. Therefore, a high value of damages does not necessarily mean that the value of the project is high. Rather, it means that damages are related to the overall project and the investor’s major interests.

Third, from the host state’s point of view, it is argued that states are always better off applying less-extreme measures if they do not want to break the relationship with the foreign investor. An extreme measure, that is a measure favoring the public interest, might signal a hardening of the bargaining strategy. For example, the state will require more concessions from the foreign investor during the negotiation process. According to Cooter et al. (1982), a hard strategy can prevent successful negotiation and reduce the probability of early settlement. We thus hypothesize that:

Hypothesis 3: *Disputes involving extreme regulatory measures are less likely to be settled early.*

2.4 Identity of foreign investors

In investor-state disputes, foreign investors are not homogeneous in the sense that they can be big, internationally recognized multinationals or individuals. The existing literature on investor-state dispute settlement focuses only on the identity of states to explain the outcomes of the proceedings, for example development status of the host state (Franck 2009; Schultz and Dupont 2014) and the home state “behind” the foreign investor (Harten 2012; Hafner-Burton and Victor 2016). In particular, this body of work seems to “homogenize” investors from a particular home country despite their wide heterogeneity. For example, an individual investor and a firm may behave differently in a dispute with the host state. This subsection tries to fill this gap in the literature by exploiting a theoretical model in a domestic litigation context.

Eisenberg and Farber (1997) investigate how the claimants’ (and foreign investors in investor-state disputes) characteristics affect the outcome of a case (trial to a verdict, or settlement). One of the most important characteristics is the distribution of litigation costs among claimants. The authors argue that the decision to file a dispute depends not only on the expected monetary value of the claim but also on pecuniary and non-pecuniary costs of the litigation (e.g. emotional and/or psychological costs of confrontation, taste for litigiousness). Interestingly, the model shows that claimants in the high-variance distribution of costs have lower litigation costs on average, than those in the low-variance distribution. Therefore, the trial (or the settlement) rate is expected to be positively (resp. negatively) associated

to the claimant’s litigation cost distribution variation. So how can these two types of claimants be proxied based on the cost distribution variation criteria? Eisenberg and Farber (1997) refer to whether the claimant is an individual or a corporation.

Accordingly, individuals are utility rather than profit maximizers. There is substantial variation across individuals in terms for example of the non-pecuniary preferences for litigation. The absence of market discipline on individuals leaves them free to make litigation decisions based on their heterogeneous tastes. In the case of corporate claimants, the situation is different. Corporate claimants cannot deviate from profit-maximizing behavior even if they are potential claimants or are deciding to go to the end of a lawsuit. Thus, in these cases it is reasonable to assume that on average their litigation costs include pecuniary costs such as legal counsel fees, value of litigation time, and other pecuniary opportunity costs. Compared to the case of individual claimants, this leaves little margin for non-pecuniary costs. Therefore, Eisenberg and Farber (1997) suggest an empirical test assuming that on average for individuals the cost distribution variation is larger, and the trial rate is higher compared to corporations. We apply this framework to our context to explain why the parties settled early before final award. We hypothesize that:

Hypothesis 4: *The probability of early settlement is lower if the dispute involves only individual investors.*

2.5 Dutch effect

In theory, the broad purpose of an economic treaty is to remove the “barriers” to international economic transactions. For example, a free trade agreement serves to reduce the tariff and non-tariff barriers to importing and exporting. The aim of a bilateral or multilateral investment treaty is to liberalize cross border investments by reducing the political risks. Moreover, bilateral investment treaties are heterogeneous. The majority but not all BITs provide foreign investors with access to ICSID to resolve investor-state disputes (Neumayer et al. 2016). Also, although the scope of some agreements has been extended to cover regulations on environmental protection and other public interests, others have relaxed these requirements (Jandhyala et al. 2011).

In the context of the liberalization of economics activities, many multinationals are active in cross border investment. Figure 1 is an example of FDI net outflow

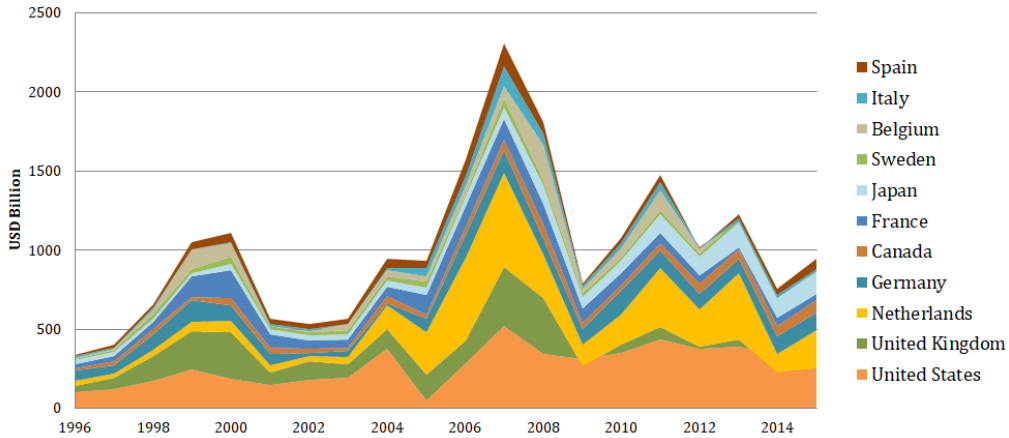


Fig. 1: FDI outflows by capital exporting countries (1996-2015)

Source of data: World Bank

for the main capital exporting countries in which the United States and the Netherlands are very active in overseas investing. Given the treaty heterogeneity and the need to protect assets especially in emerging markets, many firms have adopted the practice of treaty shopping to retain the benefits (e.g. in terms of investment protection) which a host country might not provide. For example, if there is no bilateral investment agreement between the home country A and the host country B, then an investor from the country A can route its investment through a third country C (conduit country) which has a treaty with the host country B. This treaty shopping is not prohibited and has become both popular and problematic in the context of international investment.

While structuring assets via a third country might not be prohibited, the fact that this “activity” targeting a particular country has been revealed in many studies. Using Dutch microdata from De Nederlandsch Bank in cooperation with Statistics Netherlands, Weyzig (2013) finds that the Netherlands is the world’s largest conduit for foreign direct investment (FDI): at the end of 2009, FDI diverted via the Netherlands corresponded to 13 percent of global inward FDI stock. Desai et al. (2002) confirm the Netherlands as the choice for the many US multinationals. So why has the Netherlands become an investment hub for foreign investors?

First, it is argued frequently that the host state’s governance quality is an im-

portant determinant of the investment decisions of multinationals.¹³ According to World Bank data for 1996-2015,¹⁴ the Netherlands is an ideal destination for foreign direct and indirect investment (through conduit companies) because the control of corruption, rule of law and political stability index are high and stable across time.¹⁵

Second, apart from benefits derived from the Dutch favorable corporate tax regimes related to foreign investors investing in and through the Netherlands, Weyzig (2013) and Haberly and Wójcik (2015) find that a large bilateral tax treaty network (over 100 treaties at the end of 2016) and low tax withholding rate commitments are additional reasons explaining FDI diversion via the Netherlands.

Finally, Weyzig (2013), Os and Knottnerus (2011) and Lee (2015) show empirically that Dutch BITs are an important factor in investment diversion, and that the size of the effect of BITs is comparable to the effects of tax treaties. At the end of 2016, the Netherlands had signed more than 100 bilateral investment treaties with partner countries from Africa (30 BITs), Asia (34 BITs), Europe (23 BITs) and Latin America (21 BITs).¹⁶ Skinner et al. (2010) and Wellhausen (2016b) agree that the Dutch BITs program offers among the highest levels of investment protection because alongside principal provisions on investment protection such as expropriation, national treatment, and fair and equitable treatment, they encompass a widely-defined concept of “investment” or “investor”, limit the obstacles to international arbitration, contain very few or no exceptions to the host government’s right to regulate in favor of environmental protection, public health, or essential security. Based on the coding of 104 available Dutch treaty texts,¹⁷ Table 3 (Appendix A) illustrates why Dutch BITs are attractive to foreign investors. Alschner and Skougarevskiy (2016) is a novel piece of empirical research on the content of international investment agreements. They map 24,000 articles from more than 2,100 treaties and show that the Dutch treaties’ coherence index (that reflects the similarity among Dutch treaties) is very high. This finding contributes to clarifying a constant and somewhat generous policy in the Netherlands to promote cross-border

13. The negative relationship between FDI inflows and the level of political risk in host countries is highlighted in Busse and Hefeker (2005) and Wellhausen (2016b).

14. Data were collected from: <http://databank.worldbank.org/data/reports.aspx?source=worldwide-governance-indicators>. Accessed July 25, 2019.

15. The Netherlands’ average score is almost 2 while 2.5 is the upper limit for good governance.

16. Source of data: <http://www.investmentpolicyhub.unctad.org>. Accessed July 25, 2019.

17. Treaty texts are collected from <http://www.investmentpolicyhub.unctad.org/IIA>. Accessed July 25, 2019.

investments.

There are some cases that provide evidence of the advantage of using Dutch BITs before international investment arbitration. In *Saluka v. Czech Republic*, Saluka Investment BV, a shell company incorporated in the Netherlands and wholly owned by the Japanese Nomura Group, brought a dispute with the Czech Republic before international arbitration following forced administration of a bank in which the investor had interests. While the respondent state argued that this shell company had no real economic activities in the Netherlands, the tribunal was bound by the language in the Dutch BIT to conclude that the investor was eligible for the protection offered by the Dutch BIT. Likewise, in *Rompetrol Group v. Romania*, while the respondent state claimed that the shell company should not be able to bring a claim against Romania following an investigation by the Romanian anti-corruption authority because this Dutch company was owned indirectly by Romanian nationals, the tribunal adopted an expansive approach to the BIT interpretation to qualify Rompetrol as a Dutch investor and allowed it to claim against Romania. According to the *Saluka* tribunal, “the tribunal cannot in effect impose upon the parties a definition of “investor” other than that which they themselves agreed, [...] and it is not open to the tribunal to add other requirements which the parties could themselves added but which they omitted to add”.¹⁸

Given a widely-defined-BIT strategy and the possibility that some tribunals focus mainly on the treaty text, it is argued that a Dutch BIT gives foreign investors some forms of advantages before international investment arbitration. In the settlement process, we expect that this kind of BIT may also provide investors with leverage in their bargaining with the host state due to the confidence it gives to the investors whereas awaiting a final award is costly for the host state.¹⁹ The arguments presented above lead to the following hypothesis:

Hypothesis 5: *The probability of early settlement increases if the investors invoke protection under Dutch bilateral investment treaties.*

18. Partial award dated March 17, 2006.

19. According to a report issued by the international law firm *Allen and Overy*, the average party legal costs (experts, counsel and witnesses expenses) were USD 4.5 million, and the average tribunal cost (arbitrators and institutional administration fees) was USD 0.8 million. The average amount claimed by investors was USD 500 million, and a successful investor was awarded 41 percent of the amount claimed on average. For more information see: <http://www.allenoverly.com/publications/Pages/default.aspx>. Accessed July 25, 2019.

3 Empirical analysis

3.1 Methodology

3.1.1 General description of the database

The database includes known treaty-based disputes filed from January 1, 1996 and ended by December 31, 2016. The chosen time interval seems reasonable since it covers the period of explosion of use of international arbitration (from the 2000s).²⁰ By definition a treaty-based dispute is based on violation of an international investment agreement, for example: a bilateral investment treaty, an investment chapter in a free trade agreement, the Energy Charter Treaty (1994), the Arab Investment Agreement (1980), the ASEAN Investment Agreement (1987), the Moscow Convention on Protection of the Rights of the Investor (1997), the Agreement on Promotion, Protection and Guarantee of Investments among the Member States of the Organization of the Islamic Conference (1981), or the Southern African Development Community Protocol on Finance and Investment (2006). The database excludes disputes based solely on an investment contract or domestic investment law. There are three main reasons for our decision to analyze treaty-based arbitrations. First, since investment treaties are built on the basis of the rules of international law, a treaty violation is equivalent to a breach of international not domestic level obligations. By focusing on this kind of dispute, we want to explore the conduct of states as government entities and not as ordinary commercial partners in investment contract disputes. Thus, a treaty-based arbitration involves not only resolution of an investment dispute but also a “conflict” between the private interests and public interests of the host country such as environmental protection (and then the tribunal will decide whether there is an abuse of power or simply a legitimate right to regulate as a normal sovereign entity). Second, given the heterogeneity of investment agreements (e.g. in terms of protection scope or exception for public policies), we want to explore whether this becomes a source of bargaining leverage for foreign investors. Third, to our knowledge, there is more information available on treaty-based cases, especially non-ICSID cases, than on contract or domestic law-based cases. The use

20. UNCTAD’s Investment Dispute Settlement Navigator data show that for the period before 1996, the number of treaty-based disputes filed per year and the information on these cases are very limited; in particular, the number of recorded treaty disputes is zero from 1988 to 1992.

of treaty-based disputes may mitigate the bias due to missing data.

To construct a comprehensive and representative database, we collected case-level information from various sources. The principal sources of cases and their attached documents (notice of arbitration, award or settlement agreement) are UNCTAD Investment Dispute Settlement Navigator,²¹ the ICSID website,²² the Investment Treaty Arbitration Law (ITALAW)’s website²³ and the ICSID Review. Secondary sources include official announcements about proceedings available on government portals.²⁴ The third sources are deemed reliable arbitration specific reports from non-governmental organizations such as International Institute for Sustainable Development,²⁵ IAREporter,²⁶ Kluwer Arbitration Blog²⁷ and law firms. The final sources of data are international and/or domestic media reporting information on disputes.

The unit of analysis is the treaty-based case or dispute which results from a notice of arbitration or a request for arbitration submitted by the claimant. This is different from *claimant-case*²⁸ which many authors use as the unit applied to analysis of trade disputes.²⁹ Hafner-Burton and Victor’s (2016) paper also uses *claimant-case* as the unit of analysis to predict the probability of secrecy in investment arbitration. Our choice of unit is based on two main reasons. First, given that international investment arbitrations are costly,³⁰ the choice to “group” all investors, including individual investors, which have the same interests in a case may be strategic and aimed at reducing transaction costs, compared to the filing of separate claims by all of the claimants. Second, there are some cases involving more than 40 investors.³¹

21. <http://investmentpolicyhub.unctad.org/ISDS>. Accessed July 25, 2019.

22. <https://icsid.worldbank.org>. Accessed July 25, 2019.

23. <https://www.italaw.com>. Accessed July 25, 2019. This website is constructed and updated regularly by Professor Andrew Newcombe, Faculty of Law, University of Victoria, British Columbia, Canada.

24. In particular, disputes concerning Canada and the United States are updated at: <http://www.international.gc.ca> and <https://www.state.gov>, both accessed July 25, 2019.

25. <https://www.iisd.org>. Accessed July 25, 2019.

26. <https://www.iareporter.com>. Accessed July 25, 2019.

27. <http://arbitrationblog.kluwerarbitration.com>. Accessed July 25, 2019.

28. E.g. if a case involves 3 claimants there are 3 claimant-cases.

29. See Busch and Reinhardt (2000).

30. More information on ICSID arbitration fees is available at: <https://icsid.worldbank.org/en/Pages/icsiddocs/Schedule-of-Fees.aspx>. Accessed July 25, 2019.

31. Case *Abaclat and others v. Argentina* (180000 claimants), case *Bayview v. Mexico* (46 claimants), case *Canadian Cattlemen v. USA* (109 Claimants).

The use of *claimant-case* as the unit of analysis could inflate the true arbitration population and create unexpected outliers. According to Eisenberg and Schwab (1987, p.656), “a certain arbitrariness exists in designating a *case*”. In this context, we agree with Eisenberg and Schwab (1987, p.656) that “the study probes no deeper than the court records”, and our choice of analytical unit is expected to minimize the degree of arbitrariness.

3.1.2 Model and variables

Our main dependent variable is *Settlement* which is coded one if the parties to the dispute conclude the case by an early settlement and zero if it goes to formal award in the original arbitration proceedings. Although early settlement represents discontinuance of a dispute, not all discontinuances are due to settlement. Focusing on the negotiation between the parties, we exclude from our data the following cases: (i) discontinuance of a dispute because of failure of the parties to act, for example non-payment of arbitration fees, (ii) discontinuance in order to shift the dispute to another arbitration forum, (iii) discontinuance for unknown reasons. The final cross-sectional dataset includes 450 treaty-based disputes during the period 1996-2016.

To evaluate the probability of early settlement, we estimate a Probit model which is an appropriated model if the dependent variable is binary:

$$\begin{aligned} Settlement_i = & \beta_0 + \beta_1 No\ Experience_i + \beta_2' Case\ Prospect_i + \beta_3 Extreme_i \\ & + \beta_4 Individual_i + \beta_5 Dutch\ BIT_i + X_i + \eta_i + \epsilon_i, \end{aligned} \quad (1)$$

where X is a vector of the variables controlling for economic conditions, quality of host state governance and other aspects of the dispute; η is a vector of industry, filing year, region and institution fixed effects, and ϵ is the error term.

a. Independent variables

The first variable of interest is host state’s treaty arbitration experience. Since we are interested in the difference between an inexperienced and an experienced state, we code *No Experience* as 1 if the host state has not concluded a case prior to the given dispute. We use concluded case to proxy for the host state’s experience because it helps to capture possible learning effects based on the host state’s knowledge of the full costs of at least one previous dispute.

Second, to proxy for the dispute prospect (or the outcome anticipated by the state), we argue that previous cases related to the same regulatory measure (similar precedents) may be useful. If the number of similar cases where the state won is not higher than the number of similar cases where the state lost or settled, then the prospect of the actual case is expected to be relatively unfavorable to the host state, and as predicted by the literature, the probability of settlement will increase, and vice versa. Since arbitration cases are heterogeneous, another question is which source of precedents should be used to proxy for the case prospect.

Clearly, the state cannot scrutinize all previous cases concerning “nationalization” in all countries in order to anticipate the outcome of a nationalization claim. To estimate a direct effect of precedents, it would be reasonable to consider similar cases concerning states in the same geographic region³² since they could be expected to have some similarities in their physical geography (natural resources, climate conditions), ideology, economies, and/or social spillovers, for instance. Many regional cooperation agreements have been negotiated to profit from such similarities. Therefore, we expect that the dispute resolution of “neighbors” will affect a state’s decision. *Case Prospect* captures the prospect of a given dispute and this categorical variable is coded as:

- *Good prospect* if the number of similar precedents where states in the same geographic region³³ won³⁴ is higher than the number of similar precedents where states lost and settled;
- *Bad prospect* if the number of similar precedents where states in the same region won is not greater than the number of similar precedents where states

32. 90 percent of the cases in our database have less than 1 similar precedent at the state level (and 50 percent of cases have zero similar precedents). Thus, information on each state’s previous cases is not sufficient to assess the prospect of a current dispute. However, at the region level, the 90th percentile of the similar precedents distribution is 8, and the 50th percentile is 1.

33. In this paper, we use the list of geographic regions defined by the United Nations Statistics Division: Northern Africa, Sub-Saharan Africa, Latin America and the Caribbean, Northern America, Central Asia, Eastern Asia, South-eastern Asia, Southern Asia, Western Asia, Eastern Europe, Northern Europe, Southern Europe, Western Europe, Australia and New Zealand, Melanesia, Micronesia, Polynesia. More information is available at: <https://unstats.un.org/unsd/methodology/m49/>. Accessed July 25, 2019. From here on “region” and “geographic region” are used interchangeably.

34. If all investors’ claims are dismissed at merits stage (no breach by the state), or state is found liable but compensates nothing, or if the tribunal declined to apply its jurisdiction to the investors’ claims, we code the outcome as a state win.

lost and settled;

— *No info* if there is no similar precedent at the region level.

The third variable is *Extreme*. Based on an original coding of the nature of the treaty disputes, we identify 14 types of regulatory measures that can be sources of treaty violations³⁵ (Table 4 - Appendix B). These 14 types include some measures which have direct and extreme effects on the investor’s project such as unilateral cancellation and termination of contract, revocation or denial of licenses, permits and authorizations, public tender regulations, direct expropriation, failure to enforce an award issued in favor of the investor,³⁶ trade regulations and production regulations.³⁷ All of these regulatory measures in addition to “Failure of the host state to protect investments from political violence”, have a dispossessing effect on the projects, and thus are considered as *Extreme* and coded one.

In addition to measures that limit investor’ activities radically (and their motivations to continue such operations), there are measures that have less-extreme effects e.g. supplementary obligations to contractual ones, suspension of non-tariff obligations, non-honoring of payment obligation, tax and subsidy issues, currency inconvertibility and restrictions on currency transfer. *Extreme* is coded zero for the existence of these measures in addition to “Failure of the host state to supervise the

35. Almost all information on the regulatory measures are collected from the section “Factual background” (or similar) in an award, decision or notice of arbitration. Where these primary sources were not available, the secondary sources already mentioned in the general presentation of the database were used.

36. We classify “Failure to enforce an award” as an extreme measure if such award is considered an “investment” claimed by investors. Non-respect of this award may be considered similar to the host state’s direct expropriation of the investor’s assets.

37. We classify production regulations (see details in Table 4 - Appendix B) as extreme measures because they have direct effects on foreign firms whose main activity is production. E.g. imposition of production quota that is considerably lower than the initial capacity of the plant is considered as a direct and extreme measure because compared to taxation it limits directly the ability of the foreign investor to utilize its investment (e.g. case *Cargill v. Poland*). The same reasoning applies to an enforced labeling method applied to a tobacco company whose activities and products are related absolutely and negatively to public health (e.g. case *Philip Morris v. Uruguay*). To check the robustness of the results, we recoded the variable *Extreme* excluding production regulations from the list of extreme measures and reran the model. The results (not reported) remained consistent with the baseline model.

operation of state-owned entities”.^{38 39}

To capture variation in the litigation cost distribution among two types of investor (individual and corporate investors) and its effect on the probability of early settlement, we create the fourth variable *Individual*. If the claimant is an individual investor, *Individual* is coded one; if a corporate is filing the claim against the host state, *Individual* is equal to zero.⁴⁰

Finally, because Dutch BITs are attractive to investors due to their wide scope of protection and few exceptions to regulatory power, we capture the possible effects of Dutch BITs, especially on the investor’s bargaining power, by including the binary variable *Dutch BIT*. This is equal to one if a dispute invokes protection from a Dutch BIT.

b. Control strategy

To exclude the possibility of spurious correlation, we control for confounding

38. “Failure of the host state to supervise the operation of state-owned entities” is classified as an indirect and less-extreme measure within the state’s supervisory role, and it is this omission (not a direct action) that results in losses for the investor.

39. We acknowledge that some disputes involve more than one regulatory measure. E.g. case *İçkale v. Turkmenistan* between Turkmenistan and a Turkish investor involves 2 types of measures: non-honoring of the payment obligation under the contract (less-extreme), and unilateral cancellation and termination of contract (extreme). For convenience, if there is at least one extreme regulatory measure, we code *Extreme* one. The rationale is that extreme measures are the main obstacle to negotiation between the parties.

40. In our database, there are 57 disputes with only individual investors, 366 disputes involving only corporate investors and 27 disputes involving both types of investor (e.g. case *Trinh Vinh v. Vietnam* or case *RSM v. Grenada*). In particular, the majority of individuals involved in these 27 cases have interests (e.g. as shareholders or owner) in the mentioned corporations. Therefore, it is reasonable to assume that in these cases, the litigation decisions are issued on behalf of corporations represented by these individual claimants. We expect that the effect of the claimant’s characteristics on the probability of early settlement in these cases is no different from cases involving only corporations. Among these 27 cases, there are 2 cases *Abaclat and others v. Argentina* (with more than 180,000 investors) and *Bayview v. Mexico* (with 46 investors) where the available information was insufficient to assess whether the individual investors were actual shareholders or owners of the mentioned corporations or were independent of the firms. However, even in class actions, it is possible that corporate investors may be considered “pillars”, e.g. they can reassemble individual investors that have same interests in a lawsuit, hire law firms, pay advance lodging fees and represent all the claimants to participate in a hearing. Thus, litigation decisions may be driven by corporate investors. For convenience, if a dispute involves at least a corporation, we code the variable *Individual* zero.

factors that may impact the relationship between the independent and dependent variables. In the first step, we account for characteristics of the host state that might affect its decision to settle. We control first for host state’s international economic position or trade dependence using information on its goods and services exports as a percentage of gross domestic product (GDP) (*Export host (% of GDP)*). Trade dependence is expected to have positive effect on the probability of settlement because awaiting final award can be risky in terms of time, cost and country credibility, and in particular if the national economy is dependent on other country partners. Second, we use *GDP growth host* to measure the host state’s GDP growth rate.⁴¹ This indicator is intended to capture economic changes or the economic “health” of the host state. If the national economy shows positive growth, negative information from lawsuits with foreign investors could be detrimental to the economy, and we would expect in that case that the probability of early settlement would increase. In addition, host state’s governance quality can be an indicator of arbitration claims (Dupont et al. 2016) and its decision-making during an arbitration (Hafner-Burton and Victor 2016). We introduce *Rule of law host* in the model and expect that if the law governs social behavior and contractual relationships, government can be confident that its regulatory measures are legally justified. This will reduce negotiations “in the shadow”, and the probability of early settlement. All these economic and institutional variables are based on World Bank data for year of filing.

To come closer to understanding the true effect of our main variables on the likelihood of early settlement, we include the variable *Case strength* which is coded one if the dispute is based on violation of more than one international investment treaty, or if many investors are involved in a lawsuit. According to Kucik and Pelc (2016), this can be seen as evidence of a weak case and of claimants being less confident in the merits of each separate case, and thus, the probability of early settlement with the host state may increase. We also introduce the variable *G7 Investor* to capture any effect of investors coming from high-income countries, more precisely the Group of Seven.⁴²

41. The rate of GDP growth from the previous year to the filing year.

42. Members of this Group are major industrial countries: Canada, France, Germany, Italy, Japan, the United Kingdom and the United States. We choose the G7 Group for two reasons. First, this creates a difference in the development status of the home country because the majority of investors in our database come from “developed” countries. Second, according to Harten (2012), the international investment arbitration system also applies a “less restrictive approach” to claims

The second step is to further control for possible estimation biases by including fixed effects (FE). First, following the suggestion in Wellhausen (2016a), we add industry (or economic sector) dummies because differences across industries (e.g. long-lived industries⁴³ tend to have higher levels of sunk costs) can be indicators of early settlement. Moreover, industry characteristic can somewhat capture the value of the claim.⁴⁴ Second, while controlling for host country fixed effects is not efficient,⁴⁵ we control for regional effects by introducing host country’s region dummies. In addition to specific natural and geographic conditions (e.g. natural resources), the region dummies capture possible ideological effects spilling over the region level such as attitude to the international investment arbitration system. Third, as each arbitral institution (e.g. ICSID, The Stockholm Chamber of Commerce (SCC) or The Permanent Court of Arbitration (PCA)) has its own rules to administer disputes, we further capture the effect of administrative rules on the early settlement by adding institution dummies. We expect that a long and complicated procedure to administer a dispute may “encourage” the parties to settle early. Finally, we add time fixed effects (filing year dummies) to control for any global shocks in a given year.

3.2 Empirical results

3.2.1 Descriptive analysis of data

The cross-sectional database includes 450 treaty-based disputes between host states and foreign investors from 1996 to 2016. Among these 450 cases, 28 percent were settled early during the original proceedings. Table 1 presents the statistics of

submitted by investors from G7 countries than investors from all other states. It is thus interesting to observe the behavior of these investors during the negotiation with the host country.

43. E.g. Energy, mining and quarrying, construction.

44. While we do not have sufficiently information about the exact value claimed by foreign investors, it is reasonable to think that this value may be correlated to the characteristic of the sector involved. For example, the energy sector often requires a high level of sunk costs on the part of investors and thus a high value claimed for the investment project in case of a dispute.

45. There are two reasons to justify this control strategy. First, since some countries appear a few times in this cross-sectional database, it is possible that the outcome variable (settlement) will not change along certain country dummies. As the Probit model is used to estimate, including host country fixed effects may reduce the sample size. Second, there are more than 90 respondent states in the database. Putting too many parameters may overfit the model.

Table 1: Descriptive statistics

	Obs	Mean	Std.Dev	Min	Max
<i>Settlement</i>	450	0.28	0.45	0	1
<i>No Experience</i>	450	0.30	0.46	0	1
<i>Bad prospect</i>	450	0.47	0.50	0	1
<i>No info</i>	450	0.35	0.48	0	1
<i>Extreme</i>	450	0.64	0.48	0	1
<i>Individual</i>	450	0.13	0.33	0	1
<i>Dutch BIT</i>	450	0.11	0.31	0	1
<i>G7 Investor</i>	450	0.55	0.50	0	1
<i>Case strength</i>	450	0.34	0.47	0	1
<i>Export host (% of GDP)</i>	450	36.31	18.36	0.54	121.31
<i>GDP growth host</i>	450	0.11	0.16	-0.64	0.58
<i>Rule of law host</i>	450	-0.24	0.87	-2.02	1.89

NOTES: The model includes dummies for *Bad prospect* and *No info*, corresponding to 2 levels of the categorical variable *Case Prospect*. The base level is *Good Prospect*.

all the main variables.⁴⁶

With respect to the industries involved in foreign investors' projects, the majority of disputes are related to energy, mining and quarrying (see figure 2). This is plausible because in these industries, investments are usually long-term and require relatively high levels of investor sunk costs. However, apart from these two immobile industries, there are a large number of foreign investors in mobile industries such as finance and insurance, transport, retail services, etc., which filed claims against the host states.

The respondent states involved in investor-state disputes come from all geographic regions. The two most frequent regions for arbitration claims are Latin America and the Caribbean, and Eastern Europe. The most frequent in the former region are foreign investors in Argentina and Venezuela. However, claims occur not just in developing but also in developed countries such as Australia, Belgium, Canada, Germany and the United States. With respect to investment treaties, the majority of investors invoke BIT protection, with some claiming the Energy Charter

46. For more information about the correlation matrix and collinearity diagnostics of variables used in the main regression, see Tables 5 (Appendix C) and 6 (Appendix D).

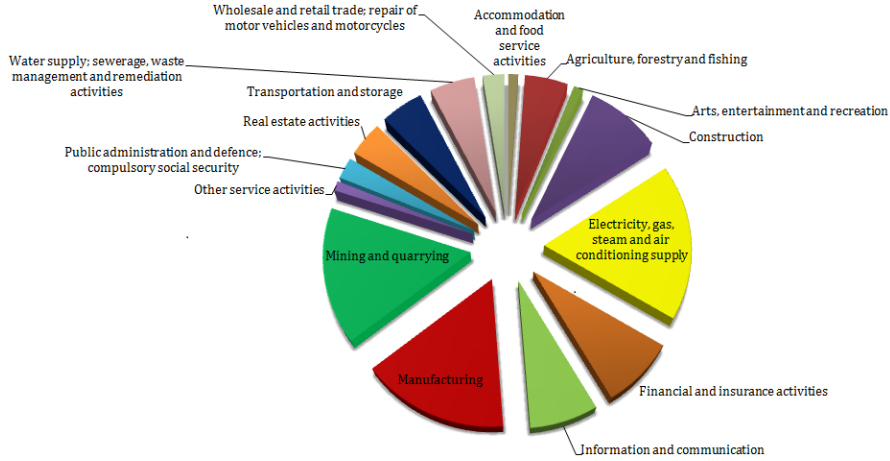


Fig. 2: Distribution of disputes over industries

Source of data: Author's calculation

Treaty (ECT) protection in the case of energy projects. North American Free Trade Agreement (NAFTA) and other free trade agreements with investment chapters are also used by investors to invoke jurisdiction of arbitral tribunals, and especially investors from the United States and Canada.

3.2.2 Econometric analysis

We present a series of models to check the robustness of our findings (Table 2).⁴⁷ Column 1 includes the variables of interest. We add control variables in Column 2 and industry, filing year, region and institution dummies in Column 3 to control for fixed effects. For convenience, these dummies are not reported in all the tables. The results commented in the rest of the subsection are those reported in Column 3 of Table 2.

47. Since we are interested in determining the sign of the estimated coefficients, we choose to display the coefficients from the Probit regression and not the marginal effects. However, for the interpretation of the empirical results (see below), we combine both the qualitative assessment (the sign of the coefficient) and the quantitative assessment (the marginal effect).

Table 2: Results of the baseline model (Probit estimation)

	(1)	(2)	(3)
	Probit	Probit	Probit
	Settlement	Settlement	Settlement
No Experience	0.294** (0.144)	0.297** (0.146)	0.473** (0.193)
Case Prospect (Base= <i>Good prospect</i>)			
<i>Bad prospect</i>	0.615*** (0.198)	0.524** (0.204)	0.556** (0.238)
<i>No info</i>	0.526** (0.210)	0.437** (0.214)	0.546* (0.280)
Extreme	-0.528*** (0.137)	-0.528*** (0.140)	-0.577*** (0.168)
Individual	-0.661*** (0.245)	-0.620** (0.245)	-0.764*** (0.243)
Dutch BIT	0.633*** (0.199)	0.646*** (0.213)	0.822*** (0.247)
G7 Investor		-0.126 (0.147)	-0.096 (0.175)
Case strength		0.056 (0.137)	0.203 (0.168)
Export host (% of GDP)		-0.008* (0.004)	0.002 (0.006)
GDP growth host		0.697 (0.428)	2.497*** (0.766)
Rule of law host		0.007 (0.080)	-0.302* (0.161)
<i>FE</i>	No	No	Yes
Intercept	-0.861*** (0.203)	-0.543* (0.287)	1.295 (1.096)
Observations	450	450	450
Pseudo R^2	0.095	0.107	0.289
Log likelihood	-240.713	-237.353	-189.058
Prob>Chi2	0.000	0.000	0.000
Hosmer–Lemeshow test (p-value)	0.58	0.56	0.71
Area under the ROC curve	0.70	0.72	0.84

NOTES: The sample consists of 450 treaty-based disputes brought before international investment arbitration from 1996 to 2016. The unit of analysis is *dispute* or *case*. The binary dependent variable is *Settlement*. *Case Prospect* means the outcome anticipated by the host state. The base level of this 3-level categorical variable is *Good prospect*. The full model 3 which includes industry, filing year, region and institution fixed effects is used to calculate the marginal effects. Hosmer–Lemeshow goodness-of-fit tests (p-value) (Lemeshow and Hosmer 1982) and the area under the receiver operating characteristic (ROC) curve (Tilford et al. 1995) are used to assess model performance: a higher p-value or a larger area under the ROC curve (> 0.50) indicates a better fitting model. Robust standard errors are in parentheses. * indicates $p < .10$, ** indicates $p < .05$ and *** indicates $p < .01$.

In general, the main model has significant power in explaining the probability of early settlement (see results of post-estimation analysis). The coefficient of *No Experience* as expected is positive and statistically significant (at the 5 percent level). In the probability metric,⁴⁸ the full model 3 shows that if the host state has no previous experience of resolving treaty arbitration, the probability of early settlement increases by 13.3 percentage points based on all the predictors set at their mean values.⁴⁹ This result implies that generally a country is more likely to choose settlement in initial lawsuits.

The base level of the 3-level categorical variable *Case Prospect* is *Good prospect*. Thus, *Bad prospect* and *No info* should be interpreted relative to the base level. The coefficient of *Bad prospect* is positive and highly significant which means that compared to *Good prospect* cases, the host state as expected will be more likely to choose early settlement, with an increase of 13.4 percentage points in the probability. Interestingly, *No info* can be a specific form of information. The model shows that compared to *Good prospect* cases, cases where the host state finds no similar precedent at the region level are also more likely to be settled early, with an increase of 13.1 percentage points in the probability.

Other case-level determinants show significant effects on the probability of early settlement. The empirical results support our hypothesis about the effect of extreme regulatory measures on settlement breakdown. If a dispute involves a measure that radically limits private activities and the motivation to continue the project (*Extreme* equal to one), the probability of settlement decreases by 16.3 percentage points.⁵⁰

If an individual investor is filing against the host state (*Individual* equal to one),

48. The Probit model “is a model for binary responses where the response probability is the standard normal cumulative distribution function (cdf) evaluated at a linear function of the explanatory variables” (Wooldridge 2015, p.766). Theoretically, it is not easy to interpret directly the Probit model coefficient. Therefore, it is better to use the marginal effect. The marginal effect is a way to interpret results in terms of differences in probability. This effect, by definition, is the change in outcome probability that results from changing an independent variable by a small amount.

49. When assessing the marginal effect of a variable on the probability of early settlement, we set all other predictors at their mean value.

50. Since the correlation between the 3-levels categorical variable *Case prospect* and the variable *Extreme* is not huge (see the correlation matrix and VIF values in Appendices), we cannot find a multicollinearity problem in our estimations. To further check the robustness of the results, we excluded each variable from the main regression to see any change in the estimation. All results (not reported) are still very consistent.

the probability of early settlement decreases significantly by 21.6 percentage points. This empirical result supports Eisenberg and Farber (1997) hypothesis about the effect on lawsuits of claimants' characteristics. Again, we would emphasize that this result does not mean that individual investors are more tenacious or more wealthy than corporations. Rather, it means that the market discipline on corporations in general allows them to choose optimally between settlement or waiting for a final judgment. Although early settlement with the host state is supposed not to be the first-best deal (i.e. investors cannot extract a higher value of compensation), it is always not too bad in terms of pecuniary litigation costs, especially if corporations have parallel projects in other countries.

Finally, Table 2 shows that use of Dutch BITs (*Dutch BIT* equal to one) is significantly and positively associated to the probability of early settlement. Based on the marginal effect, the fact that investors invoke the protection of Dutch BITs increases the probability of settlement by 23.3 percentage points. This result is in line with our hypothesis that Dutch BITs give foreign investors favorable terms as well as a favorable bargaining position with host states. Our finding confirms Wellhausen's (2016a) descriptive result and the *Dutch* effect highlighted in the political science literature on international investment.

With respect to control variables, *GDP growth host* has a positive and significant effect on the probability of early settlement when including fixed effects. The national economic position which is captured by *Export host (% of GDP)*, has initially a negative impact which contrasts with the conventional wisdom that a "dependent" economy could make concessions during negotiations with foreign investors. However, when controlling for fixed effects, trade dependence becomes statistically insignificant and of very small size. As expected, the probability of early settlement decreases when the host country's governance quality, proxied by *Rule of law host*, is better. Investors from G7 countries seem more litigious than from other states, but this effect is not statistically significant. Similarly, we find no evidence to confirm that a weak case (*Case strength* equal to one) is more likely than a strong case to be settled early.

3.3 Robustness checks

In this part, we include additional regressions to confirm the robustness of our main findings. First, we apply different estimation methods (Logit⁵¹ in Column 2 and Ordinary Least Squares (OLS)⁵² in Column 3) to determine whether the results are sensitive to the choice of estimation. Second, given that Argentina and Venezuela are the “targets” of the most arbitration claims, we try to exclude all cases concerning these two countries, and rerun the model to determine whether the findings are driven by respondent state frequency in the database (Column 4). All the models are presented in Table 7 (Appendix E).

In general, these additional models show that almost all the estimates of the main variables are still consistent with the baseline model. There is only a small change of the 3-level categorical variable *Case Prospect* when we exclude cases involving Argentina and Venezuela (Columns 4). In this case, there is little evidence that compared to cases with *Good prospect*, cases where the host state finds no similar precedent at the region level (*No info*) are more likely to be settled early.⁵³ If we employ an OLS estimation (Columns 3), *No info* becomes statistically significant at the 5 percent level. Despite the lack of statistical evidence in Column 4, the sign of the coefficient *No info* does not change across models. To some degree this still indicates estimation stability. Meanwhile, the difference in probability of early settlement between *Good prospect* and *Bad prospect* cases is highly significant after the robustness checks. Therefore, the second hypothesis about the dispute prospect is supported empirically.

Finally, a potential source of endogeneity is worth investigating in this paper. Although many aspects related to the host country and to the dispute have been included in the model, we are not able to control sufficiently for unobservable factors related to foreign investors, for example, negotiation skills, litigation experience or the effect of third-party financing (see Deffains and Desrieux 2015).⁵⁴ Nevertheless,

51. As the Probit model, the Logit model is another method that uses a non-linear function to model the conditional probability function of a binary outcome variable. However, for Logit, the response probability is the Logit function and not the standard normal cdf (Wooldridge 2015, p.763).

52. When applied to a binary outcome variable, OLS is known as a linear probability model that can be used to describe conditional probabilities.

53. The marginal effect of *No info* compared to *Good prospect* is also statistically insignificant.

54. Although we include the variable *G7 Investor* to control for the effect of investors coming

these unobserved factors might affect both our dependent and independent variables and become the main source of endogeneity. Since the problem of endogeneity gives some difficulties in identifying causality, it is important to consider which variable might suffer from endogeneity.

First, the host country’s experience is exogenous to this source of endogeneity. We see less reason for the fact that the current investor’s characteristics can impact the occurrence of disputes in a country in the past. According to Dupont et al. (2016), the occurrence of investment claims rather depends on the host country’s governance quality that has been controlled in the model.

Second, the prospect of the case, by construction, is based on previous precedents over regions. The number of legal precedents is clearly independent of the current investor’s characteristics, but it can depend on the host country’s geographic region. For example, the number of investment disputes (and then legal precedents) in Latin America is higher than in Western Europe. This difference was captured by region fixed effects in the model.

Third, we follow Guzman and Simmons (2002), in a similar context, to treat the nature of the dispute (or the rigidity of regulatory measures) as an exogenous variable. Indeed, this variable depends on the government’s behaviour and the urgency of the policy. For example, the termination of a harmful project is due to its negative environmental externalities, irrespective of the status of the investor.

Fourth, as suggested by Eisenberg and Farber (1997), we control for the differences across case categories in trial/settlement rate by adding industry fixed effects and consider the identity of investors as an exogenous variable.

For the last variable of interest *Dutch BIT*, it is reasonable to suspect that the choice of “investing” through the Netherlands (or through a Dutch legal entity) to benefit from the protection of Dutch treaties - a practice that could be called “treaty-shopping” - is probably not random. In fact, it might be endogenous to the investor’s unobserved characteristics (Os and Knottnerus 2011; Weyzig 2013). For example, anticipating a potential dispute with the host country, a large multinational firm, with efficient negotiation skills and litigation experience, might strategically choose

from major industrial countries, this might not be enough to capture the investors’ unobservable characteristics. Moreover, identifying the nationality of investors in the context of international investment is difficult due to the complexity of the ownership structures of multinational firms. See Peinhardt and Wellhausen (2016) for an interesting discussion.

to route a part of its investments through the Netherlands to benefit from a treaty with a high level of protection. Also, this type of firm is more likely to negotiate successfully with the host state, and thus, the probability of early settlement increases. A possible correlation between these unobserved factors and the regressor *Dutch BIT* might raise the identification problem, especially when we assess the content-related effect of Dutch investment treaties on the probability of early settlement (see part 2.5). This claim is valid in principle, but we believe that such concerns will play only a limited role for many reasons. First, in the current context of the globalization of investment activities, foreign firms can restructure assets in many countries through their subsidiaries without high transaction costs (e.g. by transfer of shares). Second, legal services, including assisting in treaty planning, are often provided by many law firms. Therefore, treaty-shopping for investment protection should be considered as an “insurance” for firms to fully protect their foreign business operations rather than as the strategic choice of a subset of investors (e.g. only big firms). This reasoning is also confirmed in the Two-stage Least Squares regression analysis and the regression-based *Hausman* test, as presented in Table 8 (Appendix F), in which we cannot find statistical evidence of bias caused by endogeneity issue.

4 Discussion and Conclusion

A dispute is the sign of some kind of “war” between the parties. This could sever an individual relationship, or destroy the economic and diplomatic relationship between two countries. While continuation of a dispute harms both parties at least in terms of the time spend in court, settlement would alleviate the tension between them. We agree in part with Fiss (1984) that settlement is not simply agreement to terminate a dispute. In particular, in the context of international investment arbitration, a dispute can involve the implementation of a policy favoring the public interest but which has negative impacts on the foreign investor’s project. In a context where the majority of settlement deeds are not made public, society has a right to be suspicious about the “true” outcome of a settlement, for example whether or not an environmental regulation is withdrawn by the host state based on the settlement terms. There remain many (and curious) questions related to international investment arbitration which require further research.

The present research extends preliminary work conducted by a few scholars

(Franck 2009; Harten 2012; Hafner-Burton and Victor 2016) to try to make the dispute resolution process in international arbitration more transparent. We collected data on all treaty-based disputes between 1996 and 2016, and focused on the early settlement before the final judgment. We complement Hafner-Burton and Victor’s (2016) study by working with a larger and more comprehensive dataset. To identify theoretical determinants of early settlement, we drew on the rich literature on dispute settlement in national systems. In general, we found strong evidence that the host state’s experience, the case prospect based on similar disputes, the nature of the regulatory measures, the identity of investors and Dutch investment agreements have significant impacts on the probability of early settlement. Our results both address public curiosity about the hidden international investment arbitration world and have some implications for policy.

First, as argued in Vu (2019), investor-state dispute is a current concern in both developing and developed countries. To mitigate litigation costs, countries that have signed or are negotiating international agreements on investment protection should review their legal investment frameworks to fend off arbitration claims, and consider plans to deal with possible lawsuits. Second, early settlement should be considered carefully, especially if the case affects the public interest. According to Che and Yi (1993, p.401), “setting a favorable precedent is more effective than fighting against an unfavorable one already set”. Therefore, if the host state has carefully prepared evidence, documentation and legal assistance, it may resist early settlement or agree to it only if it is not detrimental to the public interest and details are made public. Third, the legal content of many bilateral investment treaties is sketchy e.g. Dutch BITs. They work in part to encourage investors from third countries to use them as instruments to sue host countries before international arbitration. Incomplete treaties can be disadvantageous for states negotiating with foreign investors over a dispute, and before arbitral tribunal. Thus, reform of the current international investment law regime is required and should begin with renegotiation of existing investment agreements.

Despite our careful data collection and modelling efforts, this study has a limitation: it focuses only on settlement of treaty-based arbitrations. Due to the secrecy surrounding arbitration, we were unable to obtain data on all other disputes based on investment contracts or national law to complete the picture. We do not underestimate this limitation, but believe that our research contributes significantly to the

relatively new stream of work on international investment arbitration, by applying and empirically testing the widely acknowledged settlement bargaining theory on international dispute resolution practice. Moreover, our policy implications based on robust results are extremely timely in the context of the deep divisions among countries on reform of the international arbitration system (Roberts 2018). Given the increased attention from the public over recent years (Meyer and Park 2018) and the efforts of arbitral institutions including ICSID to improve their effectiveness and transparency, we are hopeful that important data on investor-state disputes will be made publicly available. Taking account of the emergence of new empirical methods, we believe that future research could refine our approach and consider the concern that we state above.

Finally, another aspect of settlement that is worthy of more theoretical and empirical research is the compliance with the settlement terms. Further research could also investigate the most popular form of non-pecuniary settlement. Is stopping the implementation of public policies a solution to settle disputes with the foreign investor? Further research could add to our results and provide readers and policy makers with a more objective view of the international investment arbitration system.

Appendix

A Characteristics of Dutch bilateral investment treaties

Table 3: Characteristics of 104 Dutch bilateral investment treaties

BIT provisions	Statistics
Preamble	
BITs do not refer to government right to regulate, sustainable development, social investment aspect or environmental aspect	91/104
Scope and Definition	
BITs use asset-based definition to define an investment or there is no definition	103/104
BITs have no limitation on the definition of investment (e.g. they did not exclude other specific assets or contain “ <i>in accordance with host state law</i> ” requirements)	92/104
BITs exclude dual nationals as “investors”	0/104
BITs require substantial business activity of corporate investors	3/104
Denial of benefits (DoB) ⁵⁵	
BITs include DoB clauses	1/104
Temporal scope of the treaty	
BITs apply to both pre-existing and post-BIT investments	89/104
Exceptions	
BITs allow the contracting parties to derogate from treaty obligations in order to protect essential security, public health, environment, cultural heritage, public order and for prudential reasons	3/104
Investor-state Dispute Settlement (ISDS)	
BITs include ISDS mechanism	100/104
BITs allow to submit to ISDS any dispute relating to investment	92/104
BITs have limitation to the scope of ISDS (e.g. excluding certain provisions, certain economic sectors)	6/104
BITs provide express or implied consent to arbitration	95/104
BITs provide at least ICSID or UNCITRAL as ISDS forum options	93/104
Continued on next page	

55. The purpose of *Denial of benefits* clauses is to exclude from the scope of treaty protections mailbox or shell companies from a third state that does not have a bilateral treaty with the host state.

Table 3 – continued from previous page

BIT provisions	Statistics
BITs include no reference to the relationship between forums (e.g. on whether the same dispute can be submitted simultaneously to several forums, including domestic court)	79/104
Amendment, renegotiation and termination	
BITs include modalities for amendment or renegotiation	4/104
“Survival” clause ⁵⁶ length is more than 10 years	90/104

56. The aim of this clause is to extend the treaty protection beyond its expiration or termination.

B Descriptions of regulatory measures

Table 4: Descriptions of regulatory measures.

Regulatory measures	Descriptions	Examples
Unilateral cancellation and termination of contract	The investment contract is cancelled early and terminated by the host state.	Gelsenwasser v. Algeria; Rumeli v. Kazakhstan
Revocation or denial of licenses, permits and authorizations	Revocation of administrative license, permit and authorization necessary to conduct a project, including environmental permits.	RSM v. Grenada; Methanex v. USA
Public tender regulations	Any change in public tender procedures which limit the investors' rights to participate in the project or sign the contract.	Bosca v. Lithuania; InterTrade v. Czech Republic
Direct expropriation	Nationalization or outright physical seizure of the private property in general.	Eni Dación v. Venezuela; Miminco v. Congo
Failure to enforce an award issued in favor of the investor	Failure by the host state to enforce in its territory an award issued by a previous tribunal in favor of the investor.	National Gas v. Egypt; GEA v. Ukraine
Trade regulations	Any regulation involving a ban on export and import.	Nusa Tenggara v. Indonesia; Apotex v. USA (III)
Production regulations	Any regulation concerning ban or quantitative restriction on production, coerced production methods such as enforced labeling about public health or a ban on profit.	Cargill v. Poland; Philip Morris v. Australia
Failure of the host state to protect investments from political violence	Failure on the part of the host state to protect private investment from politically motivated acts of war or civil disturbance.	Pantechniki v. Albania; LESI v. Algeria
Supplementary obligations to contractual ones	Any obligation outside the scope of the contract required by the host state during execution of the contract.	Mobil and Murphy v. Canada (I); Jan de Nul and Dredging International v. Egypt
Suspension of non-tariff contractual obligations	The host state does not fulfill its contractual obligations e.g. failure to deliver materials, sudden change to purchase of electricity.	Renco v. Peru; HEP v. Slovenia
Continued on next page		

Table 4 – continued from previous page

Regulatory measures	Descriptions	Examples
Non-honoring of the payment obligation under the contract	The host state does not fulfill payment obligations under the contract (including payment of sovereign bonds).	SCB v. Tanzania; SGS v. Paraguay
Tax and subsidy issues	The nature of the dispute is tax-related measures (tax assessment, tax exemption), subsidies or state-aid measures.	Micula v. Romania (I); Goetz v. Burundi (I)
Currency inconvertibility and currency transfer restriction	The host state's action or omission concerning inconvertibility from local currency into hard currency (capital, interest, principal, profits, royalties) or transfer restrictions of hard currency outside the country.	Impregilo v. Argentina (II); Pioneer v. Argentina
Failure of the host state to supervise the operation of state-owned entities	The claim is based on the supervisory role of the host state. E.g. failure to prevent bankruptcy of the investor's company, to protect investors from irregular transactions, to supervise the activities of the domestic court system which resulted in adjudication delay or mishandling of lawsuits.	Chevron and TexPet v. Ecuador (I); Anderson v. Costa Rica

C Correlation matrix

Table 5: Correlation matrix of independent variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) No Experience	1.000										
(2) Bad prospect	-0.161	1.000									
(3) No info	0.251	-0.691	1.000								
(4) Extreme	-0.021	0.169	-0.214	1.000							
(5) Individual	0.030	0.019	-0.030	0.061	1.000						
(6) Dutch BIT	-0.005	0.110	-0.120	0.033	-0.067	1.000					
(7) G7 Investor	-0.057	-0.087	0.125	-0.105	-0.006	-0.325	1.000				
(8) Case strength	-0.050	0.048	-0.063	-0.048	-0.049	0.069	-0.065	1.000			
(9) Export host (% of GDP)	-0.046	-0.047	-0.108	0.091	0.073	0.112	-0.120	-0.001	1.000		
(10) GDP growth host	-0.034	0.097	-0.010	0.052	-0.038	-0.073	-0.005	0.010	0.040	1.000	
(11) Rule of law host	0.053	-0.163	0.092	-0.039	0.052	-0.004	0.103	-0.041	0.149	-0.129	1.000

NOTES: The sample consists of 450 treaty-based disputes brought before international investment arbitration from 1996 to 2016. The unit of analysis is *dispute* or *case*. The binary dependent variable is *Settlement*. *Case Prospect* means the outcome anticipated by the host state. The base level of this 3-level categorical variable is *Good prospect*. Correlation coefficients of industry, filing year, region and institution dummies are not reported.

D Multicollinearity Diagnostics

Table 6: Multicollinearity Diagnostics

Variable	VIF	1/VIF
<i>No Experience</i>	1.53	0.65
<i>Bad prospect</i>	2.42	0.41
<i>No info</i>	3.07	0.33
<i>Extreme</i>	1.26	0.80
<i>Individual</i>	1.22	0.82
<i>Dutch BIT</i>	1.34	0.75
<i>G7 Investor</i>	1.47	0.68
<i>Case strength</i>	1.24	0.81
<i>Export host (% of GDP)</i>	1.92	0.52
<i>GDP growth host</i>	2.07	0.48
<i>Rule of law host</i>	3.13	0.32
Mean VIF	5.66	

NOTES: The sample consists of 450 treaty-based disputes brought before international investment arbitration from 1996 to 2016. The unit of analysis is *dispute* or *case*. The binary dependent variable is *Settlement*. *Case Prospect* means the outcome anticipated by the host state. The base level of this 3-level categorical variable is *Good prospect*. *VIF*, *1/VIF* values of industry, filing year, region and institution dummies are calculated but not reported. A *VIF* value that is higher than 10 indicates a multicollinearity problem.

E Robustness checks

Table 7: Robustness checks

	(1)	(2)	(3)	(4)
	Probit	Logit	OLS	Probit
	Baseline			Exc.ARG-VEN
No Experience	0.473** (0.193)	0.862** (0.347)	0.114** (0.050)	0.428** (0.206)
Case Prospect (Base= <i>Good prospect</i>)				
<i>Bad prospect</i>	0.556** (0.238)	1.002** (0.445)	0.118** (0.051)	0.575** (0.252)
<i>No info</i>	0.546* (0.280)	1.009* (0.525)	0.130** (0.064)	0.447 (0.295)
Extreme	-0.577*** (0.168)	-1.004*** (0.312)	-0.150*** (0.045)	-0.475** (0.193)
Individual	-0.764*** (0.243)	-1.281*** (0.444)	-0.127*** (0.049)	-0.729*** (0.252)
Dutch BIT	0.822*** (0.247)	1.357*** (0.440)	0.208*** (0.077)	0.965*** (0.278)
G7 Investor	-0.096 (0.175)	-0.180 (0.332)	-0.031 (0.046)	-0.050 (0.189)
Case strength	0.203 (0.168)	0.364 (0.303)	0.048 (0.046)	0.149 (0.189)
Export host (% of GDP)	0.002 (0.006)	0.002 (0.011)	0.001 (0.001)	0.007 (0.006)
GDP growth host	2.497*** (0.766)	4.541*** (1.477)	0.592*** (0.158)	2.056** (0.940)
Rule of law host	-0.302* (0.161)	-0.496 (0.312)	-0.071* (0.037)	-0.505*** (0.188)
FE	Yes	Yes	Yes	Yes
Intercept	1.295 (1.096)	2.349 (1.855)	0.816*** (0.288)	1.309 (1.122)
Observations	450	450	450	387
Pseudo R^2 or R^2	0.289	0.288	0.294	0.322
Prob>Chi2 or F	0.000	0.000	0.000	0.000

NOTES: The sample consists of 450 treaty-based disputes brought before international investment arbitration in 1996 to 2016. The unit of analysis is *dispute* or *case*. The binary dependent variable is *Settlement*. *Case Prospect* means the outcome anticipated by the host state. The base level of this 3-level categorical variable is *Good prospect*. Models (1), (2) and (3) are estimated on the full sample. Model (4) excludes cases in which Argentina and Venezuela are respondent states. Robust standard errors are in parentheses. * indicates $p < .10$, ** indicates $p < .05$ and *** indicates $p < .01$.

F Endogeneity

We suspect that the variable *Dutch BIT* might suffer from endogeneity. A possible example is that anticipating a potential dispute with the host country, a large multinational firm, with efficient negotiation skills and litigation experience, might strategically choose to route a part of its investments through the Netherlands to benefit from a treaty with a high level of protection. This type of firm is more likely to negotiate successfully with the host state, and thus, the probability of early settlement increases. A possible correlation between the investor’s unobserved characteristics and the regressor *Dutch BIT* might raise the identification problem. To deal with it, we need to find a suitable instrumental variable (IV) that is not correlated with the error term in the settlement equation (i.e. the investor’s unobserved characteristics) (Condition 1) but correlated with the choice of Dutch treaties (Condition 2).

a. Instrumental variable

Although a Dutch BIT seems to be investor-friendly, it has not been without challenges. For example, arbitral tribunals may have different manners to interpret the violation of a treaty (including a Dutch treaty), hence the problem of inconsistency in the international arbitration regime (Lee 2015; Vu 2019).⁵⁷ Therefore, a foreign investor could mitigate the risk of being a pioneer by observing other investors. Observing the overall trend in the claimant’s use of Dutch nationality in the arbitration system might induce the investor in the current case to engage in

57. One example is the dispute between Philip Morris and Australia. In 2010, the Australian government announced the implementation of new legislation concerning tobacco packaging to protect public health. In 2011, Philip Morris Asia Limited in Hong Kong, a shareholder of an Australian subsidiary engaged in the tobacco industry, filed an expropriation claim against Australia to international arbitration (PCA) following this new legislation. Since there was no BIT between Switzerland and Australia at that moment, shortly before filing the claim, the ownership of Philip Morris Australia had been transferred from Philip Morris Brands Sàrl – a Swiss company, to Philip Morris Asia Limited – a Hong Kong-registered company. The claim was thus based on the protection of the BIT signed between Hong Kong and Australia. However, in the final award dated December 17, 2015, the tribunal confirmed an “abuse of rights” of the claimant, because the Australian subsidiary has been acquired for the “principal, if not sole, purpose” of bringing claims against Australia. Therefore, the tribunal declined its jurisdiction over this dispute. In another dispute between Phoenix Action Ltd and Czech Republic, the tribunal also applied a restrictive approach to the treaty-shopping question. See the final award dated April 15, 2009 for more information.

treaty-shopping. Since structuring investments through the Netherlands to gain the treaty protection often happens before filing the given dispute,⁵⁸ we use the prevalence of the claimant’s Dutch nationality in international arbitration one year before the current dispute as an instrumental variable candidate for the regressor *Dutch BIT*.

The investor’s unobserved factors, e.g. negotiation skills, might relate to the specific economic sector or the specific country in which they invested. For example, an investor often needs to prepare feasibility studies before starting a project in a country. These studies include investment strategies to reduce risks and any potential issues that may occur in this sector or in this country (e.g. including negotiation plans in case of disagreements with the host country). In an econometric perspective, to satisfy Condition 1, the instrumental variable should not be correlated with both country- and sector-specific factors. In other words, to construct a valid instrument, we do not count cases that relate to the same country or the same economic sector with the dispute under consideration.

In sum, the choice of invoking a Dutch treaty to protect the investor’s interests in a given dispute is only correlated with the instrument through aspects which by construction are independent of the investor-specific factors (or the error term). These aspects include, for example, other firms’ preference for Dutch nationality, global policy trends favoring the capital diversion through the Netherlands, or other firms’ strategy given the riskiness of the investment environment.

b. Two-stage Least Squares estimation

We use linear probability models for both stages of estimation for the sake of simplicity. Linear probability model has also been used in a similar application with endogenous binary regressor.⁵⁹ We first estimate the reduced-form equation (or the first-stage equation - Equation 2) in which the dependent variable is *Dutch BIT*. The list of variables in the right-hand side includes the instrumental variable and

58. See also case *Mobil and others v. Venezuela*, award on jurisdiction dated June 10, 2010.

59. See, for example, Guasch et al. (2007). Talking about a model with a binary outcome and an endogenous binary variable, Angrist (1991, p.21) argues that “linear instrumental variables estimators perform nearly as well as the correctly specified maximum likelihood estimators, especially in large samples”. While attempting to generate first-stage predicted value from the Probit or Logit regressions is unnecessary and may do some harm, the consistency of the instrumental variables estimates does not require consistent first-stage functional form (Angrist 2001; Angrist and Krueger 2001).

all exogenous variables found in the settlement equation (Equation 1). We include all exogenous variables in the reduced-form equation to see some partial correlation between the instrument and the endogenous variable after partialling out the effect of other variables (Wooldridge 2010, p.90).

As expected, the results of the first-stage regression in Table 8 show that the stronger the past trend in the “use” of Dutch nationality in international arbitration, the higher the likelihood that the claimant in the current dispute invokes the protection of a Dutch treaty. This effect is statistically significant at the 0.1% level. The robust first-stage F-statistic (13.23) testing the hypothesis that the coefficient on the instrument is equal to zero exceeds the rule of thumb proposed by Staiger and Stock (1997) (i.e. the instrument is said to be weak if the first-stage F statistic is less than ten). In general, our instrument has significant explanatory power for the endogenous variable *Dutch BIT* and Condition 2 is satisfied.

$$Dutch\ BIT_i = \alpha_0 + \alpha_1 Instrument_i + \alpha_k Exogenous\ variable_i^k + v_i, \quad (2)$$

In the next step, we perform a test to examine whether *Dutch BIT* can be treated as exogenous. The main reason behind this test is the loss of efficiency by using Two-stage Least Squares (2SLS) estimation for the sake of consistency. Wooldridge (2015, p.467) highlights “an important cost of performing instrumental variables estimation when [the regressor] and [the error term] are uncorrelated: the asymptotic variance of the instrumental variables estimator is always larger, and sometimes much larger, than the asymptotic variance of the OLS estimator”. Since heteroskedasticity-robust standard errors are considered in the regression, we use a regression-based *Hausman* test (Wooldridge 2010, p.131). This test simply consists in running the settlement equation (Equation 1) augmented by the residuals of the first-stage equation (v_i). Under the null hypothesis, the endogenous variable *Dutch BIT* can be treated as exogenous and there is no need to use 2SLS. If the coefficient on the residuals is statistically different from zero, the null hypothesis is rejected.

According to the results presented in Table 8, we cannot reject the null hypothesis of the exogeneity of the regressor *Dutch BIT*: in the *Hausman* test, the p-value is 0.13. In the second stage, the estimates of our main variables are still consistent. However, the standard error of the IV estimate (0.367) is very large in comparison with OLS (0.077). Based on these results, there appears to be no definitive evi-

dence supporting that endogeneity is a serious problem in our context. This gives confidence in the findings discussed in the previous parts.

Table 8: Instrumental variables estimation

	(1)	(2)
	2SLS	OLS
		Settlement
First stage (<i>Dep. var.=Dutch BIT</i>)		
Instrumental variable	0.045*** (0.012)	
Second stage (<i>Dep. var.= Settlement</i>)		
No Experience	0.105** (0.048)	0.114** (0.050)
Case Prospect (Base= <i>Good prospect</i>)		
<i>Bad prospect</i>	0.092* (0.054)	0.118** (0.051)
<i>No info</i>	0.129** (0.062)	0.130** (0.064)
Extreme	-0.162*** (0.046)	-0.150*** (0.045)
Individual	-0.099* (0.056)	-0.127*** (0.049)
Dutch BIT (IV)	0.739** (0.367)	0.208*** (0.077)
Control variables	Yes	Yes
FE	Yes	Yes
Intercept	0.826*** (0.293)	0.816*** (0.288)
Observations	450	450
F-statistic on the excluded instrument	13.23	
Regression-based Hausman statistic (<i>p-value</i>)	2.27 (0.13)	

NOTES: The sample consists of 450 treaty-based disputes brought before international investment arbitration from 1996 to 2016. The unit of analysis is *dispute* or *case*. The binary dependent variable is *Settlement*. *Case Prospect* means the outcome anticipated by the host state. The base level of this 3-level categorical variable is *Good prospect*. The first-stage regression includes the instrumental variable and all exogenous variables in Equation 1 (for convenience, the estimates for these variables are not reported). To test the strength of the instrument, we compare the F-statistic on the excluded instrument with Staiger and Stock's (1997) rule of thumb (10). The regression-based *Hausman* statistic is used to test the hypothesis that the coefficient on the first-stage residuals is zero. Robust standard errors are in parentheses. * indicates $p < .10$, ** indicates $p < .05$ and *** indicates $p < .01$

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