

DISPUTE SETTLEMENT IN INTERNATIONAL INVESTMENT AGREEMENTS¹

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Abstract

International investment agreements almost invariably allow foreign investors to litigate against host countries (ISDS). But a popular notion holds that host countries would benefit from allowing only foreign governments to litigate (SSDS). We analyze dispute settlement under the assumption that SSDS generates political costs that affect the source country's incentives to initiate disputes and the host country's incentives to opportunistically expropriate investments. We show that an agreement always will include ISDS if countries negotiate both investment protection and dispute settlement. If countries only negotiate dispute settlement, there are circumstances when they exclude ISDS because SSDS reduces implemented investment protection.

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1 Introduction

“I oppose the ability of private corporations to attack labor, health, and environmental policies through the Investor-State Dispute Settlement (ISDS) process.” (Joseph Biden, 2020)

Around 2 300 *international investment agreements* seek to encourage foreign direct investment by protecting investors against host country policy interventions.¹ The majority of the agreements are bilateral investment treaties. But it has become common also to combine investment protection with trade liberalization commitments in preferential trade agreements, sometimes with several or many member states. These types of agreements have been strongly criticized, both in the political debate and in academic writings.² The critique has been fuelled by a number of high-profile investment disputes, such as the litigation by the energy company Vattenfall against Germany for the decision to accelerate the phase-out of commercial nuclear power in the wake of the Fukushima disaster, the \$15 billion lawsuit against the US by TransCanada Corporation for the rejection of the Keystone pipeline, and the Phillip Morris litigation against Australia for the introduction of tobacco plain packaging legislation.

The agreements are claimed to be harmful in two respects in particular. It is alleged that the obligations to compensate investors for *regulatory expropriations*—that is, for policy measures with largely the same effect on investors as direct expropriation, but without any formal seizure of assets—can include legitimate host country policy measures. The other severely criticized feature is that the agreements almost invariably allow private foreign investors to litigate against host country governments, that is, that they allow for *Investor-State Dispute Settlement* (ISDS).³ This form of dispute settlement is rare in international law, since treaties normally allow only signatory states to challenge alleged violations of the treaties by other states—*State-State Dispute Settlement* (SSDS). Critics argue that extensive investment protection coupled with ISDS unduly restrict the regulatory powers of host countries; a phenomenon often referred to as *regulatory chill*.⁴

The debate concerning these and other features of investment agreements has recently led to substantial modifications to the investment protection regime, manifested both in redrafting of existing agreements, and in novel design of new agreements. One fundamental change is the introduction of explicit *carve-out provisions* that specify circumstances under which host countries can legally intervene without being liable for compensation payments. It has become common to include, for instance, provisions that allow host countries to undertake measures that are necessary to protect

¹These are the agreements in force; see investmentpolicy.unctad.org/international-investment-agreements.

²See Stiglitz (2008) and Howse (2017) for overviews and discussion of the criticism against investment agreements.

³We use the term "litigate" for convenience, more correct would be "request arbitration."

⁴Other observers question the possibility for investors to bypass the domestic legal systems, while still arguing in favor of legal standing of private investors. For instance, more than two hundred academics took this position during the renegotiation of NAFTA; see https://www.citizen.org/system/files/case_documents/isds-law-economics-professors-letter-oct-2017_2.pdf.

human, animal or plant life and health. A second trend is to *reduce the ambit of ISDS*, either by limiting the scope for investors to invoke ISDS or by excluding ISDS altogether. For instance, the revised version of NAFTA, the *United States-Mexico-Canada Agreement* (2020), does no longer allow for ISDS between Canada and the other two countries, and there is drastically reduced scope for ISDS between the US and Mexico.⁵

The purpose of this paper is to address a number of questions that arise from these changes to the extent of investment protection and form of dispute settlement: Who benefits and who loses from switching from ISDS to SSDS for an existing agreement? How does this affect regulation and investment? How does it affect negotiated investment protection and implemented protection? Why do negotiated agreements still almost invariably allow for ISDS? The existing literature on investment agreements cannot yield any insight into these questions since it either does not distinguish between ISDS and SSDS, or does not allow countries to negotiate the level of investment protection in their agreements (see review below). In contrast, the framework below will treat both the extent of investment protection and the form of dispute settlement—ISDS or SSDS—as *negotiated contract provisions*, in line with how they are determined in actual agreement.

The paper develops an economic framework and characterizes the benchmark of no investment agreement in Section 2. The model is a simplified version of the two-country framework explored in Horn and Tangerås (2021). In the first stage, a single investor from the source country (Foreign) undertakes an irreversible investment in a production plant in the host country (Home). Production generates value in Home through job creation, technology transfers, and more, but can also have negative consequences by causing environmental damage or health problems in the host country. We model these negative effects as a stochastic shock, the magnitude of which is revealed only after the investment has been sunk. The shock can be so large that the value of production becomes negative both from a host country and a joint perspective. In the second stage, the host country decides whether to permit production or to shut down the plant through regulatory expropriation. The interaction between the decisions on investment and regulation generates two distortions. First, the foreign investor may over- or underinvest relative to the jointly efficient outcome because the investor disregards all consequences of the investment, both positive and negative, in the host country. Second, the host country tends to overregulate by ignoring the effect on the foreign investor of the decision whether to permit or disallow production. Under plausible assumptions, Home and Foreign have a mutual interest in improving investment protection because of a first-order effect on the host country through increased investment and a first-order effect on the expected profit of foreign direct investment. A fundamental role of an investment agreement is to implement such protection.

An investment agreement is introduced in Section 3. It first describes stipulations concerning

⁵This modification has been particularly common to investment protection in trade agreements. The investment chapter of the *US-Australia Free Trade Agreement* (2005) only allows for SSDS, so does the *Comprehensive Economic Partnership Agreement* (2020) between Japan and the UK. As for pure investment agreements, Brazil’s new model investment treaty is based on SSDS alone.

regulatory expropriation that are shared by most actual agreements, and presents our formalization of these basic features. The agreement we study specifies *when* regulation is compensable, *how large* the compensation shall be, and who has *legal standing*—investors or the source country government—to initiate formal proceedings against the source country. The prospect of such compensation payments improves investment incentives and reduces the host country incentive to regulate. Based on principles for compensation payments manifested in actual agreements, we consider a class of *carve-out compensation schemes*: The host country must fully compensate the investor for its foregone operating profit whenever regulation is compensable, but the agreement also establishes a carve-out (no compensation is required) for regulatory shocks that are sufficiently severe. The threshold for compensation, which we refer to as the *level of investment protection*, and the dispute settlement mechanism are negotiated prior to investment. We consider a general bargaining format that encompasses both the Nash Bargaining Solution and joint welfare optimization as special cases.

In our framework, the mode of dispute settlement matters for outcomes since the incentives to litigate against a host country depend on whether the investor or the source country government has legal standing.⁶ We build on a standard notion in the legal literature which holds that state-to-state disputes create *political* or *diplomatic tensions* between countries that do not arise when private investors litigate on commercial grounds; see e.g. Vandevelde (2005).⁷ We amend this approach by the equally natural assumption that political tensions also arise if the host country deliberately violates the agreement by regulating without paying stipulated compensation. Such *opportunistic regulation* sours the relation between the countries, and is therefore costly to both parties. The magnitude of the political costs will affect the host country incentive to regulate and the investor/host country government incentive to initiate a dispute, depending on the form of dispute settlement mechanism.

Section 4 derives the equilibrium for an agreement based on ISDS. The two countries jointly benefit from increasing investment protection above the level that would prevail absent an agreement, but the host country pays for the inflow in investment by allowing production more often than is unilaterally optimal and in other instances through compensation payments for regulatory expropriation. The negotiated equilibrium entails too much investment protection from the host country perspective and too little from the source country viewpoint. There are never any political costs in equilibrium because the threat of ISDS disciplines the host country enough to always abide by the agreement. In particular, the host country makes all stipulated compensation payments.

Section 5 performs a parallel analysis for an agreement based on SSSDS. The agreement now implements the stipulated investment protection subject to the fulfilment of three incentive com-

⁶We will use "litigation" as a synonym for the more correct "request arbitration."

⁷Sykes (2005) points to additional differences between ISDS and SSSDS. For instance, an investor might have limited influence over the government's decision to litigate on the investor's behalf. Litigation by the source country needs not lead to compensation for investors under SSSDS. Source country governments might place a different value on compensation payments than investors, and ISDS potentially allows for faster resolution of disputes.

patibility (IC) constraints. The first requires that there is enough compensation at stake for the source country to find it worthwhile to take the political cost of enforcing the agreement despite the resulting political costs. The second IC constraint requires that the compensation at stake is small enough that the host country prefers regulation with immediate compensation to opportunistic regulation, even absent any threat of source country enforcement. A third possibility is that the political cost of opportunistic regulation is so large that the host country would rather allow production. If at least one of these sufficient IC constraints is satisfied, then the outcome is precisely the same as under ISDS. However, if all three IC constraints are violated, opportunistic regulation will arise in equilibrium for certain realizations of the regulatory shock. In such instances, the host country behavior not only generates political costs in equilibrium, but also causes the expected investment protection to drop below the stipulated level, which in turn triggers a reduction in investment.

In Section 6, we compare negotiated investment agreements. We first show that simultaneous negotiation over stipulated investment protection and dispute settlement *always yields agreements that include ISDS*. The intuition behind this novel result is that the associated IC constraints limit the level of investment protection the two countries can implement through SSDS compared to ISDS. Hence, our model robustly predicts investment agreements to contain ISDS provisions.

Some recent major agreements have significant limitations on the use of ISDS, for instance USMCA (the revised NAFTA). The world’s largest free trade agreements—*The Comprehensive and Progressive Trans-Pacific Partnership* (2018) and the *Regional Comprehensive Economic Partnership* (2020)—feature a novel design by only allowing SSDS in an initial stage, leaving negotiations over ISDS for the future. There have also been frequent suggestions in the policy debate to abandon ISDS. To illuminate the consequences of such changes we perform two analyses.

We first consider the impact of excluding ISDS from an existing agreement. Foreign unambiguously loses because of the reduction in investment protection and because of the political costs of opportunistic regulation. Home can benefit from the reduced investment protection since investment agreements with ISDS tend to feature too much investment protection from the host country’s perspective. In principle, the benefit to Home can be so large that it could compensate Foreign for its losses, even after accounting for the political costs associated with SSDS. However, this result relies fundamentally on stipulated investment protection being fixed at an excessive level. If countries renegotiate also investment protection, they cannot benefit from excluding ISDS from the agreement.

Second, we consider sequential negotiation over investment protection and dispute settlement, which captures actual features of the negotiation of investment protection in some contemporary agreements. This sequential structure renders it more likely that the agreement will only contain SSDS for an arbitrary level of investment protection, since the host country now is in a position to veto ISDS in the second stage. However, if the parties foresee this possibility in the first stage, they will negotiate a level of investment protection such that the host country does not have an incentive to veto ISDS in equilibrium in the second stage negotiation.

Section 7 concludes the paper with a brief summary, and by pointing to some directions for future research. The Appendix provides formal proofs of some of the statements in the main text.

Contribution to the economic literature Markusen (1998, 2001) was among the first to discuss theoretical aspects of investment agreements, and other early contributions were made by e.g. Turrini and Urban (2008), and Aisbett, Karp and McAusland (2010a,b). The recent fierce policy debate has inspired renewed interest in the properties and implications of these agreements. Several theory papers have been published during the last few years, including studies by Konrad (2017), Janeba (2019), Kohler and Stähler (2019), and Horn and Tangerås (2021). However, this literature does not examine how the implications of investment agreements depend on the *form* of dispute settlement, whether it is ISDS or SSDS. These papers are hence silent on the questions we analyze.

The only paper that studies similar issues is by Ossa, Staiger and Sykes (2020), who compare differences in dispute settlement procedures between trade and investment agreements. One of those differences relates to the question of who has legal standing to bring a dispute before an arbitration panel. The authors develop a model in which the host country has an incentive to expropriate a sunk investment by a foreign firm because the arbitration court cannot ascertain whether a taking was efficient or not. This flaw in the dispute settlement regime also creates an incentive for the source country firm/government to litigate in the aspiration to overturn an efficient decision by the host country. All else equal, the firm has a stronger incentive to request arbitration under ISDS than the government has under SSDS by an assumption that the perceived benefit of winning is larger for the investor than the government. Ossa, Staiger and Sykes (2020) establish a trade-off between ISDS and SSDS. On the one hand, the increased litigation associated with ISDS increases efficiency by reducing host country expropriation in circumstances where continued operations by the firm is efficient. On the other hand, ISDS increases successful litigation in circumstances where it would have been more efficient to keep the plant closed. Whether ISDS or SSDS dominates the trade-off, depends on the quality of the arbitration court, the likelihood with which the host country is free to behave opportunistically, and other factors that determine the implemented investment protection. In Ossa, Staiger and Sykes (2020), the design variables effectively are dispute settlement and foreign direct investment through an investment subsidy. But the level of stipulated investment protection is constant. We conduct a different policy experiment. In our model, the design variables are dispute settlement and investment protection through carve-out provisions. There are no investment subsidies, either within the agreement or as a unilateral policy choice by the host country. The fundamental insight of our approach is the strong incentive to include ISDS if countries simultaneously negotiate investment protection.

2 The problems for an investment agreement to solve

We first describe the model under the assumption of no investment agreement. The setting is a special case of the framework used in Horn and Tangerås (2021). There are two countries, with Home being a potential host for direct investment from the source country Foreign. There is only one firm in Foreign that can undertake such investment, and all investment is undertaken in one single industry in Home.⁸

At the outset, the firm makes an irreversible investment $k \geq 0$. The firm's investment cost is a continuous, strictly increasing and weakly convex function $R(k)$ of the size of the investment, and $R(0) = 0$. The investor receives the operating profit $\Pi(k)$ if production is allowed, where $\Pi(k)$ is continuous, strictly increasing and strictly concave in k , and $\Pi(0) = 0$. For the host country, investment creates benefits in terms of consumer surplus, employment, technological spill-overs, learning-by-doing in the work-force, and so forth—the exact nature of these benefits is immaterial. After the investment has been undertaken, a shock θ is realized that affects the net benefit to the host country of allowing production. High realizations of θ could represent the arrival of severely adverse information regarding environmental or health consequences of the production process or the goods produced, or other factors affecting the desirability of the investment. The shock is continuously distributed on $[0, \bar{\theta}]$ with cumulative distribution function $F(\theta)$ and continuous density $f(\theta) > 0$.

Having observed this common-knowledge shock, the host country decides whether to permit or to regulate production. Regulation implies that production is effectively shut down, and thus deprives the firm of its operating profits, implying $\Pi(k) = 0$. This is the sole consequence of regulation for the source country. The host country welfare is $V(k, \theta)$ in case of production, reflecting the net of the positive and negative effects of the investment. The host country welfare function is continuous and differentiable in both arguments. The higher is the realization of θ , the less beneficial is the investment for the host country: $V_\theta(k, \theta) < 0$ (subscripts on functional operators denote partial derivatives throughout). $V(k, \theta)$ can be either positive or negative in case of production, and it is zero if there is no production. The marginal net benefit of investment can also be positive or negative, $V_k(k, \theta) \geq 0$.⁹ To ensure that there is a role to play for investment and regulation, we assume that for every $k > 0$, the host country prefers production if the shock is sufficiently mild, $V(k, 0) > 0$, and prefers regulating if the shock is sufficiently severe, $V(k, \bar{\theta}) < 0$.

The interaction is solved for backwards in standard fashion. The final stage is the host country's decision whether to allow production or to regulate, given investment k and the realized regulatory shock θ . Since regulation yields zero welfare for the host country, and $V_\theta < 0$ for all $k > 0$, it is sequentially rational for the host country to allow production whenever $\theta \leq \Theta(k)$, where

$$V(k, \Theta(k)) \equiv 0,$$

⁸Including also domestic firms in the industry could create a role for such National Treatment provisions typically contained in investment agreements.

⁹The functions $\Pi(k)$, $R(k)$ and $V(k, \theta)$ are assumed to be twice continuously differentiable.

and to regulate otherwise. Hence, $\Theta(k) \in (0, \bar{\theta})$ measures the investment protection offered by the host country as a function of the source country investment k . This investment protection occurs because it is in the host country's self-interest to allow the firm to produce for mild shocks even without any agreement.

Investment is made prior to the realization of the regulatory shock θ and prior to the regulatory decision. To capture the notion that the investor is small relative to the market, we assume that the investor does not take into consideration how its investment affects the probability of regulation.¹⁰ If the investor expects regulation if and only if $\theta > \hat{\theta}$, then its expected profit equals $F(\hat{\theta})\Pi(k) - R(k)$, and the optimal investment is given by

$$K(\hat{\theta}) \equiv \arg \max_{k \geq 0} \{F(\hat{\theta})\Pi(k) - R(k)\}.$$

Obviously, more investment protection translates into more investment, $K_{\hat{\theta}}(\hat{\theta}) > 0$ if $K(\hat{\theta}) > 0$. Letting tildes denote expected values of variables or functions, the expected profit is

$$\tilde{\Pi}(\hat{\theta}) \equiv F(\hat{\theta})\Pi(K(\hat{\theta})) - R(K(\hat{\theta})), \quad (1)$$

which must be non-negative in order for the firm to invest.

The equilibrium investment and investment protection absent an investment agreement is a pair (k_t^0, θ_t^0) given by $k_t^0 = K(\theta_t^0)$ and $\theta_t^0 = \Theta(k_t^0)$, with superscript 0 denoting a non-cooperative outcome under the "null" (no) agreement. Here, θ_t^0 is the sequentially rational investment protection when investment is k_t^0 , and the investment k_t^0 is optimal when the investor expects investment protection θ_t^0 . Subscript t indicates that this game can have multiple equilibria.¹¹ Those equilibria can be ranked in increasing order of θ_t^0 (or equivalently k_t^0). We denote by (k^0, θ^0) the maximal equilibrium. For the sake of equilibrium selection we assume that *an investor always expects the maximal investment protection that is consistent with rational behavior by the host country*. Under this assumption, the outcome absent an investment agreement is (k^0, θ^0) . The following Lemma establishes a fundamental property of regulation when Home and Foreign have not signed any investment agreement (see the Appendix for the proof):

Lemma 1 *If the firm invests $K(\hat{\theta}) > 0$ in the expectation of investment protection $\hat{\theta}$, then $\Theta(K(\hat{\theta})) < \hat{\theta}$ for all $\hat{\theta} \in (\theta^0, \bar{\theta}]$.*

Lemma 1 establishes that all assertions $\hat{\theta} > \theta^0$ by the firm about investment protection are

¹⁰ An alternative approach would be to consider a large number of symmetric investors that all are identically treated by the host and the source country. Each firm would then disregard the impact of its investment on the probability of regulation. Horn and Tangerås (2021) show that the jointly efficient outcome actually can be easier to implement through an investment agreement if firms invest strategically with regard to the host country regulation. But this result requires agreements that are contractually more sophisticated than the type of agreement we will consider here.

¹¹ It follows from $-\Theta(K(0)) \leq 0$, $\bar{\theta} - \Theta(K(\bar{\theta})) \geq 0$, and the Intermediate Value Theorem, that the game has at least one equilibrium.

exaggerated absent any investment agreement. We assume that $k^0 > 0$ and $\theta^0 > 0$ so that the equilibrium expected investment profit is

$$\tilde{\pi}^0 \equiv F(\theta^0)\Pi(k^0) - R(k^0) > 0,$$

and the equilibrium expected host country welfare is

$$\tilde{v}^0 \equiv \int_0^{\theta^0} V(k^0, \theta) dF(\theta) > 0.$$

There are two distortions at work, both of which are fundamental to the problems that investment agreements seek to remedy. First, the investor disregards both the positive and the negative externalities from the investment that occur in the host country. Second, the host country disregards foreign investor profit when deciding whether to regulate. Each distortion is straightforward on its own, but their interaction is more involved. Still, unilateral investment decisions by foreign investors and unilateral regulatory decisions by host countries typically entail distortions of both investment and regulation. In particular, we assume that the host country would unilaterally benefit from being able to increase investment protection above θ^0 by an associated increase in investment:

$$\int_0^{\theta^0} V_k(k^0, \theta) dF(\theta) K_{\hat{\theta}}(\theta^0) > 0. \quad (2)$$

Sufficient conditions for this property to hold are that the marginal host country benefit of investment is weakly decreasing in the regulatory shock, $V_{k\theta}(k, \theta) \leq 0$, and that the marginal welfare of investment is strictly positive evaluated at (k^0, θ^0) : $V_k(k^0, \theta^0) > 0$. Since the investor always benefits from more protection,

$$\tilde{\Pi}_{\hat{\theta}}(\hat{\theta}) = f(\hat{\theta})\Pi(K(\hat{\theta})) > 0, \quad (3)$$

the two countries have a mutual interest in increasing investment protection above θ^0 . A basic aim of an investment agreement is to achieve this joint objective.

3 An investment agreement

As mentioned above, there are considerable similarities across actual investment agreements.¹² Virtually all agreements contain provisions that require compensation in case of expropriation. These provisions cover both *direct* and *regulatory (indirect) expropriation*. Direct expropriation occurs when a host country seizes a foreign investor's assets. Regulatory expropriation is a policy intervention by the host country that has largely the same effect on investors as direct expropriation,

¹²See Dolzer and Schreuer (2012) for an introduction to International Investment Law. Salacuse (2007), Trevino (2013), Bernasconi-Osterwalder (2014), Roberts (2014), Gertz (2017) and Menon (2018) discuss legal and other aspects of SSDS and non-ISDS mechanisms.

but without any formal taking of assets.

The ambit of regulatory expropriation clauses has been a frequent source of contention in both the case law and in the policy debate. Agreements can limit investment protection in at least two respects. The first concerns the interpretation of regulatory expropriation. Some panels have taken the view that all what matters is the effect of government measures for investors; the intent behind the measure is irrelevant. But more recent panels have often interpreted the agreements to impose less severe restrictions on host countries, emphasizing the "police powers exemption" in international law that allows states to protect public welfare.¹³ The other, and increasingly common, restriction on investment protection is through *explicit carve-outs* from compensation requirements. For instance, a treaty might state that its stipulations shall not preclude the parties from adopting or enforcing any measure that is "necessary to protect human, animal or plant life or health", provided that the measure does not constitute "disguised protection", or "arbitrary or unjustifiable discrimination".

Virtually all investment agreements include rules concerning compulsory dispute settlement that allow both investors and source country governments and to initiate disputes. There are very limited possibilities of to appeal dispute panel determinations. Importantly, most countries are signatories to conventions that require courts in the signatory states to recognize and enforce arbitral awards from any other signatory state. The enforcement mechanisms are consequently much stronger than those in international trade or environmental agreements.

Most actual investment agreements share a number of regarding compensation in case of regulatory expropriation that are central from a contractual point of view:

1. All compensation payments are from the host country to foreign investors and are only required subsequent to regulatory intervention.
2. There are no payments to or from outside parties.
3. There can be carve-outs from compensation requirements for certain types of regulatory measures.
4. Any compensation must equal foregone operating profits.¹⁴

These properties imply that investment agreements are characterized by a substantial degree of contractual incompleteness. Importantly, there is no direct contracting on investment levels nor on regulation. Instead, investors and the host country retain unilateral discretion over these decisions. Finally, investment agreements do not provide any commitments regarding direct subsidies to, or taxes on, investors.

¹³Often cited examples of the former approach are the panels in *Metalclad v. Mexico*, 1997, and *TECMED v. Mexico*, 2003. An example of the latter approach, which has also been adopted by a number of later panels, is *Methanex v. United States*, 2005.

¹⁴Some panels have used different criteria, such as the magnitude of the investors' investment.

3.1 Formalizing an agreement

To formally capture the above salient features of actual treaties, we formalize an agreement as consisting of two components. The first component is a specification of the amount of compensation the investor will receive in case of regulation, as a function of underlying circumstances. A critical issue is obviously the constraints to be imposed on the contracting space. To represent features 1-4 listed above, an agreement in the context of our model specifies the following *carve-out compensation scheme*

$$T(k, \theta, \hat{\theta}) \equiv \begin{cases} \Pi(k) & \text{if } \theta \leq \hat{\theta} \\ 0 & \text{if } \theta > \hat{\theta} \end{cases}$$

where $T(k, \theta, \hat{\theta})$ is the amount that the host country shall pay the investor in case of regulation. Compensation is hence required if the regulatory shock θ is weaker than a threshold value $\hat{\theta}$, but not for shocks that are more severe than $\hat{\theta}$. Furthermore, whenever regulation is compensable, this compensation should equal the firm's foregone operating profit. We will refer to $\hat{\theta}$ as the *stipulated level of protection* of the agreement, since full compensation is requested for all realizations of θ smaller or equal to $\hat{\theta}$, whereas the investor is not entitled to any compensation for regulation that occurs if $\theta > \hat{\theta}$.

The second standard component of the agreement is a stipulation of *who has legal standing to initiate a dispute*. Investment agreements normally allow both investors and states to litigate, although states hardly ever use this option in practice. Virtually all of the more than 1 000 known treaty-based investment disputes have been pursued by investors rather than their governments, despite the possibility for SSDS in virtually all agreements.¹⁵ We therefore assume the two countries negotiate over ISDS versus SSDS.

3.2 The sequence of events with an agreement

To capture the very long-term nature of investment agreements, we consider agreements that are formed at the outset of the interaction. The events then unfold as follows:

1. The firm invests k .
2. A regulatory shock θ is realized.
3. The host country decides whether to:
 - allow production;
 - regulate with immediate compensation; or
 - regulate without any associated compensation.
4. If the host country regulates without respecting a compensation requirement, the investor (ISDS) or the source country government (SSDS), decides whether to:

¹⁵UNCTAD Investment and from <http://investmentpolicyhub.unctad.org/isds>.

- let the violation go unchallenged; or
- enforce the compensation payment through formal arbitration.

We assume that a dispute court can perfectly observe whether uncompensated regulatory intervention by the host country amounted to illegal indirect expropriation ($\theta \leq \hat{\theta}$) or a legitimate policy intervention under the agreement ($\theta > \hat{\theta}$). A common knowledge shock obviously simplifies the analysis, but it would be straightforward to formally introduce adjudication with noisy signals.

A second simplifying assumption is that there are no legal process costs from pursuing disputes. There are of course in actuality often substantial costs involved. However, there is no obvious reason why they would differ significantly between private investors and governments. Even governments often rely on counsel from law firms. Also, the inclusion of such costs would not formally affect results in our complete information setting under the additional assumption that the losing party is liable for all litigation costs.

A central issue in what follows will be the extent to which an agreement *implements* the stipulated level of protection. Investor beliefs about investment protection determines how much they invest. Investment and the realization of the regulatory shock affect the host country's incentive to regulate and the source country's incentive to enforce the stipulated protection under SSDS. Since we are interested in sequentially rational investments, expectations concerning investment protection must be fulfilled in equilibrium. A stipulated level of protection will therefore not be credible if an investment undertaken on the basis of a belief in the stipulated level would induce the host and source country to *actually implement a different* level of protection than the stipulated. In case the agreement stipulates a non-implementable level of protection, the investor always expects the maximal investment protection that is consistent with rational behavior by the host country, as per our assumption regarding equilibrium selection.

3.3 The political costs of violating and enforcing an agreement

A standard view in the legal literature holds that costly tensions arise when *a source country government initiates a dispute* against a host country under SSDS for alleged violations of an agreement, tensions that do not arise under litigation by private investors. Governments typically interact in a wide range of areas. Some are of an economic nature, but countries also cooperate on national security, money laundering, drug enforcement, sharing of air space and numerous other issues. When a government challenges another government in one area, this can often sour the relationship in other areas, to the detriment of both parties. We will refer to such negative effects as "political costs." These costs do not arise, or at least arise to a smaller extent, in the interaction between private investors and a host country government. Their relations typically center on the investment itself, and rarely extend to other areas.

We embrace the view that political costs may emanate from disputes under SSDS, but a theory of how political costs affect the choice of dispute settlement must then be complemented. In

particular, *violations of the agreement by the host country* will also cause political costs that harm both countries. Such costs will arise both under SSDS and ISDS. Since the host country political costs for violating the agreement tend to enhance the integrity of the agreement, while enforcement costs tend to destabilize the agreement, the net effect of these costs is a priori ambiguous.

The political costs can take a multitude of different forms, many of which fall outside the realm of economic analysis. We will therefore not explicitly model any specific propagation mechanism, but instead represent these costs in reduced form. It seems plausible that regulation without required compensation is seen to be more confrontational, the weaker is the regulatory shock that the host country is exposed to. Specifically, we assume that Home inflicts a political cost $M^H(k, \theta, \hat{\theta}) > 0$ on itself if it regulates the firm without paying compensation for $\theta \leq \hat{\theta}$. The cost $M^H(k, \theta, \hat{\theta})$ is strictly decreasing in θ , and is continuous in all arguments for $\theta \leq \hat{\theta}$. The cost is the same under ISDS and SSDS and arises regardless of whether the host country actions actually triggers litigation. Instead, Home's actions do not inflict any political cost if Home either permits production, regulates with immediate compensation payment $\Pi(k)$ for shocks $\theta \leq \hat{\theta}$, or regulates without compensation for shocks $\theta > \hat{\theta}$, since in all three instances the host country abides by the terms of the agreement. Regulation without required compensation will expose also Foreign to a political cost $M^F(k, \theta, \hat{\theta})$ with qualitatively the same properties as $M^H(k, \theta, \hat{\theta})$. But this cost will have no bearing on the incentives facing Home and Foreign.¹⁶

The other form of political costs arises when the source country government escalates the conflict by litigating against the host country through SSDS. This behavior exposes Foreign to the political cost $N^F(k, \theta, \hat{\theta})$ and Home to the political cost $N^H(k, \theta, \hat{\theta})$. As discussed above, these costs do not arise when the investor enforces the agreement. The source country enforcement cost only matters if the host country has regulated for $\theta \leq \hat{\theta}$ without paying compensation. In this case, we assume that the enforcement cost is smaller for smaller θ because then the host country opportunistic behavior is more blatant. Specifically, $N^F(k, \theta, \hat{\theta})$ is strictly positive, continuous in all its arguments and strictly increasing in θ for all $\theta < \hat{\theta}$.

3.4 Bargaining format

Negotiations over the agreement occur at the outset of the interaction, before the investment stage. We will not employ any specific bargaining solution, but assume instead that the bargaining outcome maximizes the continuous bargaining function $B(\tilde{X}(\hat{\theta}, \delta), \tilde{Y}(\hat{\theta}, \delta))$, where $\tilde{X}(\hat{\theta}, \delta)$ and $\tilde{Y}(\hat{\theta}, \delta)$ are the expected welfare functions of Home and Foreign, respectively, depending on the stipulated level of protection, $\hat{\theta}$, and the mode of dispute settlement, $\delta = I$ for ISDS and $\delta = S$ for SSDS, in the agreement. The function B is taken to be strictly increasing in each of its arguments and differentiable everywhere, $B_{\tilde{X}} > 0$, $B_{\tilde{Y}} > 0$. These properties are compatible with, for instance, the

¹⁶For the sake of completeness, we write the political costs also as functions of k since it is potentially pay-off relevant. However, it will not affect the analysis to follow.

Nash Bargaining solution and joint welfare maximization. The negotiated outcome is constrained by Home and Foreign's participation constraints:

$$\tilde{X}(\hat{\theta}, \delta) \geq \tilde{v}^0 \text{ and } \tilde{Y}(\hat{\theta}, \delta) \geq \tilde{\pi}^0. \quad (4)$$

We assume that the countries enter into an agreement if and only if both participation constraints are satisfied and joint surplus *strictly* increases compared to the outside option, $\tilde{X}(\hat{\theta}, \delta) + \tilde{Y}(\hat{\theta}, \delta) > \tilde{v}^0 + \tilde{\pi}^0$. This means that at least one country strictly benefits from the agreement. All investment agreements that we discuss below have these properties by assumption. We first establish a general result concerning investment agreements (the proof is the Appendix):

Lemma 2 *Any investment agreement that stipulates compensation $T(k, \theta, \hat{\theta})$ and dispute settlement $\delta \in \{I, S\}$, has the property $\hat{\theta} > \theta^0$.*

An agreement must clearly implement a level of protection that exceeds θ^0 in order to increase investment. The property $\hat{\theta} > \Theta(K(\hat{\theta}))$, see Lemma 1, implies that there will then be a range of shocks $\theta \in (\Theta(K(\hat{\theta})), \hat{\theta})$ for which the host country would prefer to regulate without compensation, but where the agreement stipulates compensation payments.

The analysis to follow will be done in three steps: Section 4 derives the equilibrium outcome for the negotiated level of investment protection, investment and regulation, with ISDS; and Section 5 performs a similar analysis for SSDS. Section 6 draws on the previous two sections to establish fundamental results regarding dispute settlement in investment agreements.

4 ISDS

We start by considering an agreement with ISDS. We solve for equilibrium investment, regulation and enforcement for arbitrary investment protection, and then let the parties negotiate $\hat{\theta}$.

4.1 Equilibrium investment, regulation and enforcement

Assume that the two countries have signed an agreement featuring compensation $T(k, \theta, \hat{\theta})$ and ISDS. This agreement has stipulated investment protection $\hat{\theta} > \theta^0$ by Lemma 2, where $\hat{\theta} > \Theta(K(\hat{\theta}))$ by Lemma 1. The agreement thus allows the host country to regulate without compensation for sufficiently severe shocks, $\theta > \hat{\theta}$, and the host country will prefer to do so if the firm has invested $K(\hat{\theta})$. If the host country regulates for $\theta \leq \hat{\theta}$ it is obliged to pay compensation under the terms of the agreement.

Suppose the host country violates the agreement by regulating without compensation for $\theta \leq \hat{\theta}$. The investor will always enforce any stipulated payments by the assumption that doing so is without cost. Consequently, the host country will be forced to make a compensation payment in the end. It then ends up financially in the same position as with immediate compensation payment, except

it has now incurred the additional political cost $M^H(k, \theta, \hat{\theta})$ by violating the agreement. Therefore, the host country will either allow production or regulate with immediate compensation for all shocks $\theta \leq \hat{\theta}$ under ISDS.

We assume that the welfare cost to the host country of the compensation payment and the value to the source country of that payment are the same and given by $T(k, \theta, \hat{\theta})$. The host country then prefers regulation if and only if it is better to pay $\Pi(k)$ in compensation to avoid welfare $V(k, \theta) < 0$ associated with allowing production, that is, if and only if $V(k, \theta) < -\Pi(k)$. There is thus a threshold for the regulatory shock $\Theta^J(k)$ defined by

$$V(k, \Theta^J(k)) \equiv -\Pi(k)$$

if $V(k, \bar{\theta}) \leq -\Pi(k)$ and by $\Theta^J(k) = \bar{\theta}$ otherwise, such that the host country is willing to regulate even if it has to pay compensation for $\theta > \Theta^J(k)$.

The investor behaves non-strategically vis-à-vis the host country's regulation decisions. The investor will therefore invest $K(\hat{\theta})$ if the expectation is either to gain permission to produce or to be regulated with full compensation for all $\theta \leq \hat{\theta}$, and to be regulated without compensation for $\theta > \hat{\theta}$. The following result is immediate:

Lemma 3 *Any investment agreement that stipulates compensation $T(k, \theta, \hat{\theta})$ and ISDS, has the following properties:*

- (i) *The firm invests $K(\hat{\theta})$.*
- (ii) *The host country allows production for all $\theta \leq \min\{\hat{\theta}; \Theta^J(K(\hat{\theta}))\}$.*
- (iii) *The host country lawfully regulates by paying immediate compensation if $\Theta^J(k) < \theta \leq \hat{\theta}$.*
- (iv) *The host country lawfully regulates without paying compensation if $\hat{\theta} < \theta \leq \bar{\theta}$.*

4.2 Expected welfare

The host country expected welfare in an agreement with ISDS equals $\tilde{X}(\hat{\theta}, I) = \tilde{V}(\hat{\theta})$, where

$$\tilde{V}(\hat{\theta}) \equiv \begin{cases} \int_{\underline{\theta}}^{\hat{\theta}} V(K(\hat{\theta}), \theta) dF(\theta) & \text{if } \hat{\theta} \leq \Theta^J(K(\hat{\theta})) \\ \int_{\underline{\theta}}^{\Theta^J(K(\hat{\theta}))} V(K(\hat{\theta}), \theta) dF(\theta) - [F(\hat{\theta}) - F(\Theta^J(K(\hat{\theta})))] \Pi(K(\hat{\theta})) & \text{if } \hat{\theta} > \Theta^J(K(\hat{\theta})). \end{cases} \quad (5)$$

The host country expected welfare depends on whether compensation payments can arise in equilibrium. If stipulated investment protection is limited in the sense that $\hat{\theta} \leq \Theta^J(K(\hat{\theta}))$, the host country will allow production and obtain welfare $V(K(\hat{\theta}), \theta)$ for mild shocks $\theta \leq \hat{\theta}$, and it will lawfully regulate without compensation payments and obtain zero welfare for $\theta > \hat{\theta}$. These properties yield the expression on the first row of (5). The second row of (5) characterizes the expected host country welfare under extensive investment protection, $\hat{\theta} > \Theta^J(K(\hat{\theta}))$. The host country will permit production and obtain welfare $V(K(\hat{\theta}), \theta)$ for $\theta \leq \Theta^J(K(\hat{\theta}))$; it will regulate and pay full

compensation for all shocks $\Theta^J(K(\hat{\theta})) < \theta \leq \hat{\theta}$, in which case its welfare will be $-\Pi(K(\hat{\theta}))$; and it will regulate without compensation payments for all shocks $\theta > \hat{\theta}$, in which case host country welfare will be zero. The term in square brackets on the second row of (5) measures the probability that the host country will pay compensation under the agreement.

The source country expected welfare equals the expected investor profit since the host country never causes any political costs by breaching the agreement. The firm is either allowed to produce or is regulated with full compensation for $\theta \leq \hat{\theta}$, and regulated without compensation for $\theta > \hat{\theta}$. The source country expected welfare in an agreement with ISDS therefore equals $\tilde{Y}(\hat{\theta}, I) \equiv \tilde{\Pi}(\hat{\theta})$ as given by (1) regardless of whether there are equilibrium compensation payments. There is scope for such an agreement by $\tilde{V}(\hat{\theta}) > \tilde{v}^0$ and $\tilde{\Pi}(\hat{\theta}) > \tilde{\pi}^0$ for some $\hat{\theta} > \theta^0$; see (2) and (3).

4.3 Negotiated investment protection

Assume that the level of investment protection θ^I that maximizes the bargaining function $B(\tilde{V}(\hat{\theta}), \tilde{\Pi}(\hat{\theta}))$ over $\hat{\theta} \in [\theta^0, \bar{\theta}]$ subject to (4), is unique. The optimum satisfies the necessary first-order condition

$$B_{\tilde{X}}(\tilde{V}(\theta^I), \tilde{\Pi}(\theta^I))\tilde{V}_{\hat{\theta}}(\theta^I) + B_{\tilde{Y}}(\tilde{V}(\theta^I), \tilde{\Pi}(\theta^I))\tilde{\Pi}_{\hat{\theta}}(\theta^I) = 0 \quad (6)$$

in an equilibrium agreement that features incomplete investment protection $\theta^I < \bar{\theta}$, and where both countries strictly benefit from the agreement, $\tilde{V}(\theta^I) > \tilde{v}^0$ and $\tilde{\Pi}(\theta^I) > \tilde{\pi}^0$.

Note that the negotiated outcome reflects a conflict of interest. The marginal effect $\tilde{\Pi}_{\hat{\theta}}(\hat{\theta})$ of investment protection on expected investment profit is always positive by (3), so any increase in the level of protection above θ^I would strictly benefit the source country, whereas it would lose from any reduction below θ^I . It then follows from (6) that $\tilde{V}_{\hat{\theta}}(\theta^I) < 0$, so the host country would *benefit from a marginal reduction* in investment protection below θ^I , and it would lose from *any* increase in investment protection above θ^I .¹⁷ By implication, the negotiated investment protection exceeds the level $\theta^U > \theta^0$ that maximizes the host country expected welfare

$$\theta^I \geq \theta^U \equiv \arg \max_{\hat{\theta} \in [\theta^0, \bar{\theta}]} \tilde{V}(\hat{\theta}). \quad (7)$$

The inequality is strict if $\theta^U < \bar{\theta}$. Finally, the host country would lose for sufficiently large reductions in the level of protection by $\tilde{V}(\theta^I) > \tilde{v}^0$.

Proposition 1 (Negotiated protection with ISDS) *Assume that the parties negotiate the level of investment protection given ISDS:*

(i) *The negotiation will yield the stipulated level of protection θ^I .*

¹⁷For suppose that $\tilde{V}(\hat{\theta}) \geq \tilde{V}(\theta^I)$ for some $\hat{\theta} > \theta^I$. We would then have $B(\tilde{V}(\hat{\theta}), \tilde{\Pi}(\hat{\theta})) > B(\tilde{V}(\theta^I), \tilde{\Pi}(\theta^I))$ by the assumption that the bargaining function is strictly increasing in both arguments, which would violate the presumed optimality of θ^I .

(ii) The agreement will implement θ^I and investment $k^I \equiv K(\theta^I)$.

(iii) The host country would prefer less and the host country more investment protection than θ^I .

5 SSDS

Consider again an agreement featuring stipulated compensation $T(k, \theta, \hat{\theta})$, but now with SSDS. From an investor's point of view it is still immaterial whether its revenue is received as operating profit or as compensation for regulation. However, what matters now is not the stipulated, but the *implemented* level of protection. Under SSDS, the two are not always the same.

5.1 Enforcement and regulation incentives

Assume that the firm has invested $K(\hat{\theta})$ in the belief that the agreement will implement the stipulated level of protection $\hat{\theta}$. The investor then expects to receive either operating profit $\Pi(K(\hat{\theta}))$ or the same amount as compensation in case of regulation for all $\theta \leq \hat{\theta}$, but no compensation for regulation for more severe shocks $\theta > \hat{\theta}$. Enforcement of the agreement through SSDS only matters for shocks $\theta \in (\Theta(K(\hat{\theta})), \hat{\theta}] \equiv \Lambda(\hat{\theta})$ because the host country will always allow production for shocks $\theta \leq \Theta(K(\hat{\theta}))$ even absent any agreement. The investor will recover its operating profit for all shocks $\theta \in \Lambda(\hat{\theta})$ if the compensation payment is sufficiently large relative to the source country political enforcement cost, that the source country will always use SSDS to challenge any decision by the host country to regulate without respecting a stipulated compensation payment. Formally, this requires

$$\Pi(K(\hat{\theta})) \geq N^F(K(\hat{\theta}), \hat{\theta}, \hat{\theta}). \quad (8)$$

The host country then rationally foresees that the source country will enforce the agreement for any uncompensated regulation that occurs for shocks $\theta \leq \hat{\theta}$. Consequently, the host country honors the agreement to avoid the unnecessary political cost $M^H(K(\hat{\theta}), \theta, \hat{\theta})$, just as in the case of ISDS.

Things are more complicated if the source country political enforcement cost is so large that the investor cannot always count on investment protection through SSDS: $\Pi(K(\hat{\theta})) < N^F(K(\hat{\theta}), \hat{\theta}, \hat{\theta})$. This situation leaves the host country with three possibilities:

- Allow production and achieve welfare $V(K(\hat{\theta}), \theta)$.
- Regulate with immediate compensation payments and get $-\Pi(K(\hat{\theta}))$.
- Regulate without paying compensation and get $-M^H(K(\hat{\theta}), \theta, \hat{\theta})$; which we denote *opportunistic regulation* since the regulation exploits the lack of enforcement by the source country.

Notwithstanding the lack of source country enforcement, the agreement will implement $\hat{\theta}$ if the host country political cost of violating the agreement is sufficiently high. There are two channels through which the host country political costs affect investment protection. One possibility is that the host

country *prefers immediate compensation to opportunistic regulation*. This condition is satisfied for all $\theta \in \Lambda(\hat{\theta})$ if

$$M^H(K(\hat{\theta}), \hat{\theta}, \hat{\theta}) \geq \Pi(K(\hat{\theta})). \quad (9)$$

This condition states that the political cost of violating the agreement is sufficiently large relative to the cost of immediate compensation even for the shock $\theta = \hat{\theta}$, that immediate compensation is preferable to opportunistic regulation.

The second possibility is that the host country *prefers production to opportunistic regulation*. This condition is satisfied for all $\theta \in \Lambda(\hat{\theta})$ if

$$V(K(\hat{\theta}), \hat{\theta}) \geq -M^H(K(\hat{\theta}), \hat{\theta}, \hat{\theta}). \quad (10)$$

5.2 Equilibrium investment, regulation and enforcement

Each of the three incentive compatibility (IC) constraints (8)-(10) is sufficient to implement stipulated investment protection $\hat{\theta}$ under SSDS if the firm has invested $K(\hat{\theta})$. We let

$$A \equiv \{\hat{\theta} \in (\theta^0, \bar{\theta}]: \text{at least one of (8), (9) and (10) holds}\}$$

be the set of stipulated investment protection levels that can be implemented under SSDS. Potentially, $A = (\theta^0, \bar{\theta}]$, in which case there is no real difference between SSDS and ISDS. However, it could also be the case that $A^c \equiv (\theta^0, \bar{\theta}] - A \neq \emptyset$. The subset A^c then contains the stipulated levels of investment protection $\hat{\theta}$ for which *all* three IC constraints (8)-(10) are violated. A stipulated protection level $\hat{\theta} \in A^c$ cannot be implemented subsequent to investment $K(\hat{\theta})$ by the firm. In this case, actual investment protection differs from what is stipulated. Hence, we can generally distinguish between two qualitatively different sets of circumstances under SSDS.

SSDS can implement stipulated protection A first possibility is that the political costs associated with SSDS do not affect implementation of the agreement:

Lemma 4 *Consider an investment agreement that stipulates compensation $T(k, \theta, \hat{\theta})$ and SSDS. Any such agreement where $\hat{\theta} \in A$, has the same properties as an agreement with ISDS, as characterized in Lemma 3.*

Hence, for $\hat{\theta} \in A$, either the source country enforces the agreement, the host country allows production for $\theta \leq \hat{\theta}$, or the host country regulates with immediate compensation for $\theta \leq \hat{\theta}$.

As noted above, a standard notion holds that enforcement with SSDS gives rise to political costs. But as we have argued, political costs for violations of an agreement seem equally plausible as political costs of enforcing agreements in case of violations. The existence of host country political costs can have real impact on the outcome with SSDS:

Observation 1 *With SSDS, political costs from violations of the agreement might prevent political enforcement costs from undermining the agreement.*

SSDS cannot implement stipulated protection Investment $K(\hat{\theta})$ fails to implement the stipulated investment protection $\hat{\theta}$ if all three IC constraints (8), (9) and (10) are violated, so that $\hat{\theta} \in A^c$. In this situation, the rational investor will anticipate less investment protection than the stipulated level $\hat{\theta}$, and invest accordingly. Assume that the firm invests $K(\theta')$ in the subjective belief that it will receive investment protection $\theta' \leq \hat{\theta}$.

Let $L(\theta', \hat{\theta})$ be the actual level of investment protection implemented by the host country if the firm invests $K(\theta')$ and the agreement stipulates investment protection $\hat{\theta}$. The expected investment profit then equals $F(L(\theta', \hat{\theta}))\Pi(K(\theta')) - R(K(\theta'))$. Hence, beliefs and actions form a rational expectations equilibrium only if $\theta' = L(\theta', \hat{\theta})$. If the firm optimistically believes in the stipulated level $\hat{\theta}$ and invests $K(\hat{\theta})$ accordingly, then opportunistic regulation reduces actual investment protection below the stipulated level for $\hat{\theta} \in A^c$: $L(\hat{\theta}, \hat{\theta}) < \hat{\theta}$. The other polar extreme case is of a pessimistic firm. This firm believes that any agreement with stipulated protection $\hat{\theta} \in A^c$ will offer no more investment protection than the situation without any agreement, $\theta' = \theta^0$. The firm consequently invests $K(\theta^0) = k^0$. In this case,

$$V(k^0, \theta^0) = 0 > -M^H(k^0, \theta^0, \hat{\theta})$$

implies that the firm will receive strictly more investment protection $L(\theta^0, \hat{\theta})$ than θ^0 , because the political cost $M^H(k^0, \theta, \hat{\theta})$ of opportunistic regulation has a disciplining effect on the host country for mild shocks $\theta > \theta^0$. The pessimistic belief thus understates actual investment protection under SSDS. As $\theta^0 - L(\theta^0, \hat{\theta}) < 0$ and $\hat{\theta} - L(\hat{\theta}, \hat{\theta}) > 0$, $\theta' = L(\theta', \hat{\theta})$ for some $\theta' \in (\theta^0, \hat{\theta})$ by the Intermediate Value Theorem. There can be multiple such fixed points, so let $G(\hat{\theta}) \in (\theta^0, \hat{\theta})$ be the maximal level of protection in the set of fixed points. We verify the following statement in the Appendix:

Lemma 5 *Consider an investment agreement that stipulates compensation $T(k, \theta, \hat{\theta})$ and SSDS. Any such agreement where $\hat{\theta} \in A^c$, has the following properties:*

- (i) *The firm invests $K(G(\hat{\theta}))$.*
- (ii) *The host country allows production if $\theta \leq \min\{G(\hat{\theta}); \Theta^J(K(G(\hat{\theta})))\}$.*
- (iii) *The host country lawfully regulates with immediate compensation payment if $\Theta^J(K(G(\hat{\theta}))) < \theta \leq G(\hat{\theta})$.*
- (iv) *The host country regulates opportunistically if $G(\hat{\theta}) < \theta \leq \hat{\theta}$.*
- (v) *The host country lawfully regulates without compensation payment if $\hat{\theta} < \theta \leq \bar{\theta}$.*

5.3 Expected welfare

If an agreement with SSDS implements the stipulated level of protection $\hat{\theta}$, the host country either allows production or regulates with immediate compensation for all $\theta \leq \hat{\theta}$, and the host country regulates without compensation for all $\theta > \hat{\theta}$. The implementation of the agreement does not impose any political costs on either country, since the host country honors the contract stipulations in the agreement, and the source country never has to challenge the host country decisions. The expected welfare in both countries then is exactly the same as under ISDS, namely $\tilde{X}(\hat{\theta}, S) \equiv \tilde{V}(\hat{\theta})$ and $\tilde{Y}(\hat{\theta}, S) \equiv \tilde{\Pi}(\hat{\theta})$ for all $\hat{\theta} \in A$.

However, an agreement that builds on SSDS cannot always implement $(K(\hat{\theta}), \hat{\theta})$. If $\hat{\theta} \in A^c$, the host country's expected welfare equals

$$\tilde{X}(\hat{\theta}, S) \equiv \tilde{V}(G(\hat{\theta})) - \int_{G(\hat{\theta})}^{\hat{\theta}} M^H(K(G(\hat{\theta})), \theta, \hat{\theta}) dF(\theta). \quad (11)$$

The source country's corresponding expected welfare is

$$\tilde{Y}(\hat{\theta}, S) \equiv \tilde{\Pi}(G(\hat{\theta})) - \int_{G(\hat{\theta})}^{\hat{\theta}} M^F(K(G(\hat{\theta})), \theta, \hat{\theta}) dF(\theta). \quad (12)$$

An agreement based on SSDS causes several problems if the political cost of violating the terms of the agreement and the enforcement costs are such that SSDS cannot implement the stipulated level of investment protection. SSDS reduces investment protection $G(\hat{\theta})$ below the stipulated level $\hat{\theta}$ and thereby reduces investment to $K(G(\hat{\theta})) < K(\hat{\theta})$. Moreover, this equilibrium is sustained by opportunistic regulation for shocks $\theta \in (G(\hat{\theta}), \hat{\theta}]$, the expected political cost of which is captured by the second term in each of the above expressions.

5.4 Negotiated investment protection

Negotiation over the level of protection under SSDS results in a level of protection that maximizes $B(\tilde{X}(\hat{\theta}, S), \tilde{Y}(\hat{\theta}, S))$ over $\hat{\theta} \in (\theta^0, \bar{\theta}]$ subject to (4). The analysis now has to account for the possibility that the agreement cannot implement $\hat{\theta}$. Let $\hat{\theta} \in A^c$, and consider an alternative agreement that stipulates investment protection $G(\hat{\theta})$. The investment $K(G(\hat{\theta}))$ then implements the stipulated protection level $G(\hat{\theta})$ because the combination of investment and stipulated protection satisfies either the source country IC constraint,

$$\Pi(K(G(\hat{\theta}))) = N^F(K(G(\hat{\theta})), G(\hat{\theta}), \hat{\theta}), \quad (13)$$

or one of the host country IC constraints:

$$M^H(K(G(\hat{\theta})), G(\hat{\theta}), \hat{\theta}) = \min\{\Pi(K(G(\hat{\theta}))); -V(K(G(\hat{\theta})), G(\hat{\theta}))\}. \quad (14)$$

Hence, $G(\hat{\theta}) \in A$. This alternative agreement implements the same level of investment and protection as the agreement stipulating $\hat{\theta} \in A^c$, but without imposing any political costs on the two countries. It therefore strictly outperforms the initial agreement:

$$B(\tilde{X}(G(\hat{\theta}), S), \tilde{Y}(G(\hat{\theta}), S)) = B(\tilde{V}(G(\hat{\theta})), \tilde{\Pi}(G(\hat{\theta}))) > B(\tilde{X}(\hat{\theta}, S), \tilde{Y}(\hat{\theta}, S)).$$

We conclude that for every proposed agreement with stipulated protection $\hat{\theta} \in A^c$, there exists an agreement with stipulated protection $G(\hat{\theta}) \in A$ that is strictly better than the proposed agreement. All negotiated levels of investment protection $\hat{\theta}$ under SSDS will therefore be contained in A . Consequently, no agreement negotiated under SSDS generates any political costs for either party in equilibrium:

Proposition 2 (Negotiated protection with SSDS) *Assume that the parties negotiate the level of investment protection given SSDS:*

(i) *The negotiation will yield the stipulated level of protection*

$$\theta^S \equiv \begin{cases} \theta^I & \text{if } \theta^I \in A \\ \arg \max_{\hat{\theta} \in A} B(\tilde{V}(\hat{\theta}), \tilde{\Pi}(\hat{\theta})) & \text{if } \theta^I \in A^c. \end{cases}$$

(ii) *The agreement will implement θ^S and investment $k^S \equiv K(\theta^S)$.*

(iii) *There will not be any opportunistic regulation, and hence no political costs, in equilibrium.*

If the negotiated outcome with ISDS can be implemented also under SSDS, $\theta^I \in A$, then the negotiating parties will choose this same level also with SSDS. However, if θ^I cannot be implemented under SSDS, $\theta^I \in A^c$, the parties will agree on the implementable level of protection in A that maximizes the bargaining function $B(\tilde{V}(\hat{\theta}), \tilde{\Pi}(\hat{\theta}))$. Whether $\theta^S \geq \theta^I$ is ambiguous, however:

Observation 2 *An agreement with SSDS can feature more or less investment protection than an agreement with ISDS depending on whether θ^I is closer to the upper or lower bound of A^c .*

6 Selecting a dispute settlement mechanism

We will now draw on the analysis above to examine several central issues with regard to the rationale for including or excluding ISDS in investment agreements.

6.1 Why agreements include ISDS

As emphasized above, investment agreements almost invariably include both ISDS and SSDS, although in practice only the ISDS mechanism is used for enforcement. To highlight the forces that work toward the inclusion of ISDS, we first consider a *simultaneous* negotiation over the form of

dispute settlement and the stipulated level of protection. This bargaining format corresponds well with how negotiations usually are conducted in practice. In our setting, the negotiation maximizes $B(\tilde{X}(\hat{\theta}, \delta), \tilde{Y}(\hat{\theta}, \delta))$ over $\hat{\theta} \in (\theta^0, \bar{\theta}]$ and $\delta \in \{I, S\}$ subject to the contracting parties' participation constraints and other relevant restrictions on the contracting space. We can formally characterize the solution by first solving for the optimal investment protection given ISDS or SSDS separately and then optimize dispute settlement:

$$\begin{aligned} \max_{\hat{\theta} \in (\theta^0, \bar{\theta}]} B(\tilde{X}(\hat{\theta}, I), \tilde{Y}(\hat{\theta}, I)) &= B(\tilde{V}(\theta^I), \tilde{\Pi}(\theta^I)) \\ &\geq B(\tilde{V}(\theta^S), \tilde{\Pi}(\theta^S)) \\ &= \max_{\hat{\theta} \in (\theta^0, \bar{\theta}]} B(\tilde{X}(\hat{\theta}, S), \tilde{Y}(\hat{\theta}, S)) \end{aligned}$$

The inequality is strict if $\theta^I \in A^c$ because then $\theta^I \neq \theta^S$, whereas θ^I uniquely maximizes $B(\tilde{V}(\hat{\theta}), \tilde{\Pi}(\hat{\theta}))$. Put differently, the negotiating parties choose from the restricted set A of incentive compatible protection levels under SSDS, whereas they choose from the full set $(\theta^0, \bar{\theta}]$ under ISDS. We can now state our main result:

Proposition 3 (Negotiated dispute settlement) *Simultaneous negotiation over the stipulated investment protection and the dispute settlement mechanism yields an agreement with investment protection θ^I and ISDS.*

The proposition predicts that investment agreements will select ISDS if the choice is between ISDS and SSDS. In reality, most investment agreements feature both ISDS and SSDS. Dual dispute settlement mechanisms may cause a coordination problem within the source country regarding whether the investor or the government should enforce the agreement in case of a violation by the host country. There is no point for the firm to enforce compensation payments if the source country does so on its behalf, and vice versa. However, in the present setting where enforcement is without cost for the investor under ISDS, it is always a weakly dominant strategy for the investor to enforce the agreement regardless of the source country government's plan to enforce the agreement. A rational host country that anticipates investor enforcement, will not litigate. Proposition 3 would then apply even if agreements always contain SSDS by default.

6.2 Consequences of excluding ISDS

The analysis above suggests that ISDS has efficiency benefits over SSDS. This finding is consistent with the fact that the vast majority of investment agreements allow for ISDS. However, the possibility for corporations to litigate against countries has become increasingly controversial, not least in those countries that have been subject to such litigation. Several existing agreements have been

redrafted to reduce the use of ISDS, and in some cases it has been removed entirely. This section examines the incentives and consequences of altering an existing agreement in this direction.

It is straightforward to see why there might be political opposition to ISDS in a host country. Consider an agreement that features investment protection $\hat{\theta} > \theta^0$ sustained by ISDS, and assume that the firm has invested $K(\hat{\theta})$. If a shock θ in the range $(\Theta(K(\hat{\theta})), \min\{\hat{\theta}; \Theta^J(K(\hat{\theta}))\})$ is realized, the host country will find it ex post optimal to allow production instead of regulating, to avoid having to pay compensation to the foreign investor. The agreement will thus cause *domestic regulatory chill* that can be seen to be driven by the credible threat of litigation by the investor that ISDS enables. Second, if there is a regulatory shock θ in the range $(\Theta^J(K(\hat{\theta})), \hat{\theta}]$, the host country will find it ex post optimal to regulate despite having to pay compensation, since it would otherwise face ISDS litigation. Such a payment to a foreign investor for the right to avoid the consequences a rather severe shock could easily be seen as unreasonable. Third, in these situations the basic purpose of the agreement seems to have failed by generating excessive investment from the viewpoint of the host country. Experiences from these types of situations might drive demands for the removal of ISDS from investment agreement, as a means to reducing litigation.¹⁸

Of course, such an argument ignores the long-run consequences of weaker enforcement in terms of reduced investment. Moreover, a removal of ISDS is likely to lead to a renegotiation also of the investment protection in the agreement. To evaluate the consequences of removing ISDS from an existing agreement and the host country's incentive for initiating such a policy change, one must account for these long-term effects. In this section, we first consider the effect of removing ISDS, holding investment protection constant at $\hat{\theta}$. However, we account for investment by assuming that the change in dispute settlement occurs prior to the firm's decision how much to invest. We then consider the impact of excluding ISDS when a revision also leads to a *renegotiation* of the level of protection in the agreement.

6.2.1 Excluding ISDS with unchanged investment protection

Consider an agreement that has been negotiated to allow for both ISDS and SSDS. We assess the implications of redrafting the agreement to only allow for SSDS, while leaving investment protection unchanged at $\hat{\theta}$. If $\hat{\theta} \in A$, then sufficient IC constraints for implementation of $\hat{\theta}$ are fulfilled also under SSDS. This implementation can rely on a credible threat of source country enforcement or on substantial political costs of opportunistic regulation in the host country. The outcome remains fundamentally unaffected despite the fact the exclusion of ISDS forces the parties to rely on a dispute settlement mechanism that yields political costs if activated. Hence, there is nothing to gain for any party from removing ISDS from the agreement if $\hat{\theta} \in A$.

¹⁸There can be additional reasons why a host country would like to escape the consequences of an investment agreement. For instance, a host country may disagree with an arbitration panel's interpretation of the agreement, the host country's expectations about investment may have been unfulfilled, or domestic political change can affect the preferred design of the agreement.

The interesting cases occur if $\hat{\theta} \in A^c$, so that an agreement with SSDS cannot implement $\hat{\theta}$. Removing ISDS from the agreement will then reduce the enforced level of investment protection from $\hat{\theta}$ to $G(\hat{\theta})$ and investment from $K(\hat{\theta})$ to $K(G(\hat{\theta}))$ as a consequence of the change in investment protection. Enforcement of $G(\hat{\theta})$ will in some instances build on opportunistic regulation by the host country, which creates political costs in both countries. For the source country, the effect of removing ISDS is strictly negative:

$$\tilde{Y}(\hat{\theta}, S) - \tilde{Y}(\hat{\theta}, I) = -[\tilde{\Pi}(\hat{\theta}) - \tilde{\Pi}(G(\hat{\theta}))] - \int_{G(\hat{\theta})}^{\hat{\theta}} M^F(K(G(\hat{\theta})), \theta, \hat{\theta}) dF(\theta). \quad (15)$$

Not only does removal of ISDS reduce investment protection, which is the first term above, it also leads to political costs because of opportunistic regulation, which is the second term. The consequences for the host country are ambiguous:

$$\tilde{X}(\hat{\theta}, S) - \tilde{X}(\hat{\theta}, I) = \tilde{V}(G(\hat{\theta})) - \tilde{V}(\hat{\theta}) - \int_{G(\hat{\theta})}^{\hat{\theta}} M^H(K(G(\hat{\theta})), \theta, \hat{\theta}) dF(\theta). \quad (16)$$

Removing ISDS from the agreement increases the expected political cost of enforcing investment protection, which is the second term above. However, the reduction in investment protection from $\hat{\theta}$ to $G(\hat{\theta})$ can have a negative or positive effect on the host country expected welfare. An investment agreement under ISDS will typically stipulate more investment protection than the level θ^U that maximizes host country expected welfare; see (7). If $\hat{\theta} > \theta^U$, then a removal of ISDS can benefit the host country by bringing investment protection $G(\hat{\theta})$ closer to θ^U . The associated increase in host country surplus can be sufficient to dominate the loss in profit suffered by the host country in the sense of increasing the bargaining surplus: $B(\tilde{V}(G(\hat{\theta})), \tilde{\Pi}(G(\hat{\theta}))) > B(\tilde{V}(\hat{\theta}), \tilde{\Pi}(\hat{\theta}))$.¹⁹ If this necessary condition is violated, there is no increase in surplus to bargain over. But even if the increase in host country expected welfare dominates the source country loss in expected investment profit, two additional problems stand in the way of SSDS. First, enforcement of $G(\hat{\theta})$ generates political costs in both countries that can be substantial enough to offset the increase in $B(\tilde{V}(\hat{\theta}), \tilde{\Pi}(\hat{\theta}))$ associated with a switch from ISDS. Hence, removing ISDS can therefore be optimal only if these costs are relatively small. Second, the host country must be able to compensate the source country for its loss $\tilde{Y}(\hat{\theta}, I) - \tilde{Y}(\hat{\theta}, S)$, either through side payments or some other mechanism. Otherwise, the source country will not accept changing dispute settlement in the agreement. We summarize these findings as:

Proposition 4 *Assume that an initial agreement containing ISDS stipulates investment protection that cannot be enforced under SSDS ($\hat{\theta} \in A^c$). Holding $\hat{\theta}$ constant, the two parties will agree to remove ISDS from the agreement if and only if the following conditions all are met:*

(i) *A reduction in investment protection from $\hat{\theta}$ to $G(\hat{\theta})$ increases the expected host country welfare*

¹⁹This property holds, for instance, if $\theta^I = G(\hat{\theta})$.

more than it reduces the expected investment profit: $B(\tilde{V}(G(\hat{\theta})), \tilde{\Pi}(G(\hat{\theta}))) > B(\tilde{V}(\hat{\theta}), \tilde{\Pi}(\hat{\theta}))$.

(ii) The expected political costs of a violation of the agreement by the host country are sufficiently small.

(iii) The host country can compensate the source country for its losses associated with moving from ISDS to SSDS.

The following policy relevant conclusion is immediate:

Corollary 1 *Excluding ISDS from an investment agreement can be beneficial by increasing the host country's discretion to regulate in an agreement that otherwise features excessive investment protection.*

The above results bear resemblance to findings in Ossa, Staiger and Sykes (2020). Relative to (i) in Proposition 4, ISDS can generate too much investment protection in their setting because imperfect observability of the underlying shock may cause an arbitration court to overturn a correct decision by the host country to regulate. Such mistakes are less likely to occur under SSDS relative to ISDS because of less frequent litigation in the former case. The model by Ossa, Staiger and Sykes (2020) satisfies (ii) in Proposition 4 because their model does not feature any incremental political costs $M^H(k, \theta, \hat{\theta})$ or $M^F(k, \theta, \hat{\theta})$. Their model also satisfies (iii) in Proposition 4 because the decision whether to implement ISDS or SSDS is taken to maximize joint welfare across the two countries. Specifically, the host country compensates the investor for any losses through an investment subsidy.

There are also fundamental differences between Proposition 4 and the findings in Ossa, Staiger and Sykes (2020). In their paper, the choice between ISDS and SSDS trades off the benefit of reducing inefficient expropriation against the cost of exacerbating inefficient underregulation. In our model, there is never inefficient underregulation. The choice between ISDS and SSDS instead balances the benefit of reducing inefficient overregulation against the cost of exacerbating a problem of distorted investments emanating from excessive stipulated investment protection.

In our model with endogenous investment protection, the above results leave open the question why the two countries would negotiate excessive investment protection $\hat{\theta}$ in the first place. We here have to go outside the model, but several explanations seem plausible. One possibility is that the initial agreement was negotiated in circumstances under which the host country decision maker had an objective function $\hat{V}(k, \theta) > V(k, \theta)$ that led to an equilibrium investment protection level $\hat{\theta} > \theta^I$ under ISDS. A change in the host country objective function from $\hat{V}(k, \theta)$ to $V(k, \theta)$ would then create an incentive for the host country to renegotiate the agreement. This change could in turn come about through a political change, or because economic development in host country had reduced the benefit from foreign investment. Another possibility could be that countries initially over-estimated the effect of the agreement on investment, perhaps by failing to realize the effects of globalization on competition for investment across countries.

6.2.2 Excluding ISDS with renegotiated investment protection

We now consider the implications of redrafting an initial investment agreement to exclude ISDS while *simultaneously renegotiating investment protection* $\hat{\theta}$. We assume that $\hat{\theta} \in A^c$ because a change in dispute settlement is economically uninteresting if $\hat{\theta} \in A$. From Section 5, we know that the best outcome the two countries can achieve under SSDS is to agree on investment protection $\theta^S \in A$, since the agreement will then be enforced without any associated political costs. So, assume that the agreement for given $\hat{\theta}$ and ISDS is changed to $\hat{\theta}$ and θ^S and SSDS.. The effect on expected welfare in the two countries of the modified agreement is

$$\tilde{X}(\theta^S, S) - \tilde{X}(\hat{\theta}, I) = \tilde{V}(\theta^S) - \tilde{V}(\hat{\theta}) \text{ and } \tilde{Y}(\theta^S, S) - \tilde{Y}(\hat{\theta}, I) = \tilde{\Pi}(\theta^S) - \tilde{\Pi}(\hat{\theta}).$$

The welfare effects now are ambiguous for each country because investment protection θ^S can either go up or down relative to $\hat{\theta}$. The revised agreement yields more bargaining surplus than $\hat{\theta}$ and SSDS, $B(\tilde{V}(\theta^S), \tilde{Y}(\theta^S)) \geq B(\tilde{V}(G(\hat{\theta})), \tilde{Y}(G(\hat{\theta})))$ by the conditional optimality of $\theta^S \in A$, thus fulfilling condition (i) in Proposition 4. The revised agreement automatically satisfies (ii) in Proposition 4 because there are no political costs of enforcing the agreement for $\theta^S \in A$. Finally, the larger bargaining surplus with the revised agreement implies that it should be no more difficult to compensate the loser under investment protection θ^S compared to $G(\hat{\theta})$, fulfilling property (iii) in the proposition. Hence, simultaneous renegotiation of dispute settlement and investment protection seems to open the door for the exclusion of ISDS in a revised agreement.

However, Proposition 4 assumed a given level of protection. When all aspects of the agreement are on the table for renegotiation, there is no reason why the contracting parties should settle for θ^S and SSDS. Since $\theta^S \in A$, the parties could switch to θ^S and ISDS without affecting the outcome. And with ISDS they could increase the bargaining surplus by changing the level of protection to θ^I . This solution generates an even bigger bargaining surplus than θ^S without any drawbacks for either side. Investment protection θ^I sustained by ISDS should therefore be no more difficult to implement than θ^S sustained by ISDS in a revised agreement. We therefore reiterate Proposition 3 as the following result:

Proposition 5 *Assume that an initial agreement containing ISDS stipulates investment protection that cannot be enforced under SSDS ($\hat{\theta} \in A^c$). No simultaneous renegotiation of both investment protection and dispute settlement can lead to a revised agreement with SSDS only.*

Proposition 5 implies that exclusion of ISDS in an investment agreement relies fundamentally on the assumption that stipulated investment protection in the agreement is exogenous. This observation has a policy relevant implication:

Corollary 2 *Removing ISDS from a revised agreement is an inefficient solution to problems associated with excessive investment protection. A better solution is to renegotiate investment protection directly under maintained ISDS.*

6.3 Negotiating investment protection prior to dispute settlement

As mentioned in the introduction, two recent major investment agreement initially only allow for SSDS, but also stipulate that negotiation regarding inclusion of ISDS is to occur at a later stage. In this section, we consider the implications of such two-stage negotiation. We assume that both stages are negotiated prior to investment and that the objective functions remain the same across the two stages. The second-stage decision about dispute settlement does not matter if the parties have negotiated investment protection $\hat{\theta} \in A$ in the first stage because the agreement will implement $\hat{\theta}$ and investment $K(\hat{\theta})$ regardless of whether ISDS is included in the second round negotiation.

If $\hat{\theta} \in A^c$, then inclusion of ISDS in the second stage will increase the implemented level of investment protection from $G(\hat{\theta})$ to $\hat{\theta}$ and investment from $K(G(\hat{\theta}))$ to $K(\hat{\theta})$. Moreover, the political costs of sustaining investment protection vanish because there is no opportunistic regulation under ISDS. The net effect on the source country and host country expected welfare are given by the negative of the expressions in (15) and (16). Including ISDS in the second stage unambiguously benefits the source country, $\tilde{Y}(\hat{\theta}, I) > \tilde{Y}(\hat{\theta}, S)$, and may benefit or hurt the host country. If $\tilde{X}(\hat{\theta}, I) \geq \tilde{X}(\hat{\theta}, S)$, then including ISDS in the second stage represents a Pareto improvement over the first-stage outcome. The condition $\tilde{X}(\hat{\theta}, I) \geq \tilde{X}(\hat{\theta}, S)$ also represents an *interim participation constraint* under sequential bargaining. Unless the source country can compensate the host country for its losses, the agreement will maintain SSDS as the only dispute settlement mechanism, if first-stage investment protection $\hat{\theta}$ implies $\tilde{X}(\hat{\theta}, I) < \tilde{X}(\hat{\theta}, S)$. This result holds even if the bargaining surplus under ISDS is larger than the bargaining surplus under SSDS, so that $B(\tilde{X}(\hat{\theta}, I), \tilde{Y}(\hat{\theta}, I)) > B(\tilde{X}(\hat{\theta}, S), \tilde{Y}(\hat{\theta}, S))$. Based on these results, it would seem as if a sequential bargaining structure increases the possibility for maintaining SSDS as the exclusive dispute settlement mechanism compared to simultaneous negotiation of investment protection and dispute settlement.

Consider now first stage negotiation of investment protection under the assumption that the source country cannot compensate the host country for introducing ISDS at the second stage. We can partition A^c into two subsets. The first subset A_+^c contains all $\hat{\theta} \in A^c$ that satisfy $\tilde{X}(\hat{\theta}, I) \geq \tilde{X}(\hat{\theta}, S)$. The second subset A_-^c contains all $\hat{\theta} \in A^c$ for which $\tilde{X}(\hat{\theta}, I) < \tilde{X}(\hat{\theta}, S)$. By these definitions, the agreement implements any stipulated $\hat{\theta} \in A \cup A_+^c$. In particular, the agreement implements $\hat{\theta} \in A_+^c$ by augmenting dispute settlement with an ISDS provision at the second stage of negotiations. Would the two parties ever negotiate $\hat{\theta} \in A_-^c$? No, because both parties can do strictly better by negotiating $G(\hat{\theta}) \in A$. We therefore conclude:

Proposition 6 *Assume that the parties negotiate the level of investment protection given SSDS in a first stage and whether to include ISDS in a second stage. Assume also that the two parties do not have access to any side payments.*

(i) *The negotiation will yield the stipulated level of protection*

$$\theta^E \equiv \begin{cases} \theta^I & \text{if } \theta^I \in A \cup A_+^c \\ \arg \max_{\hat{\theta} \in A \cup A_+^c} B(\tilde{V}(\hat{\theta}), \tilde{\Pi}(\hat{\theta})) & \text{if } \theta^I \in A_-^c. \end{cases}$$

(ii) *The agreement will implement θ^E and investment $k^E \equiv K(\theta^E)$.*

(iii) *There will not be opportunistic regulation, and hence no political costs, in equilibrium.*

Altering the structure of negotiations can have a real effect on the bargaining outcome by changing the equilibrium investment protection from θ^I to θ^E in certain circumstances. Sequential negotiations cannot implement $\theta^I \in A_-^c$ because the host country will veto ISDS in the second stage. The source country is better off under sequential than simultaneous bargaining if $\theta^E > \theta^I$, and the host country is relatively better off under sequential bargaining if $\theta^E < \theta^I$. Hence, the two countries will generally disagree on the bargaining structure, but one cannot say which country prefers which structure because $\theta^E \underset{>}{\leq} \theta^I$.

The structure of the bargaining process is itself an agreement between the parties, and thus subject to negotiation. But it is impossible to make any predictions on the basis of our model as to when countries would opt for one structure over the other. However, sequential bargaining is less appealing than simultaneous bargaining in the sense that the former structure is associated with a smaller bargaining surplus: $B(\tilde{V}(\theta^E), \tilde{\Pi}(\theta^E)) < B(\tilde{V}(\theta^I), \tilde{\Pi}(\theta^I))$. This property pulls in favor of simultaneous bargaining as the most common format. Finally, $\theta^E \in A \cup A_+^c$ implies that the two countries either are indifferent ($\theta^E \in A$), or strictly prefer ($\theta^E \in A_+^c$) to include ISDS at the second stage. In particular:

Corollary 3 *Sequential bargaining over investment protection and whether to include ISDS cannot lead to the exclusion of ISDS in equilibrium.*

7 Conclusion

The policy debate on investment agreements centres on two interrelated issues: the appropriate scope of regulatory expropriation provisions and the design of the dispute settlement mechanisms that are used to enforce these provisions. Ours is the first integrated economic analysis of these two issues. We demonstrate that when two countries negotiate dispute settlement in an international investment agreement, under general conditions they will include the possibility for investors to litigate against the host country. This result is consistent with the observation that most of the world's investment agreements contain ISDS provisions.

Yet, opponents argue that only governments should have legal standing to request arbitration against other governments through SSDS. Recently, several agreements have either been renegotiated

ated to exclude ISDS, or the inclusion of ISDS has been postponed to future negotiations. We show that excluding ISDS from an agreement indeed increases the host country's ability to regulate without facing litigation if the source country faces political costs of enforcing an agreement. Such costs will reduce investment protection under SSDS relative to ISDS. Excluding ISDS from an agreement that for some reason stipulates excessive investment protection can therefore be one way to increase the regulatory powers of the host country.

Exclusion of ISDS comes with costs, since the reduced level of investment protection reduces investment, and since SSDS can generate political costs by creating incentives for host country opportunistic regulation. These costs must be weighted against any benefits of reduced protection. We demonstrate that a more efficient remedy than removal of ISDS, would be to renegotiate the stipulated investment protection directly to allow additional carve-outs from compensation requirements. This observation is consistent with a trend towards introducing explicit carve-out provisions in contemporary investment agreements.

We conclude by discussing three directions for research on dispute settlement in investment agreements.

Rationales for SSDS In our model, SSDS can only constrain the outcome relative to what parties can negotiate under ISDS. Providing a strictly beneficial role for SSDS under joint negotiation of dispute settlement and investment protection would require an extended framework. Such a framework could entail financial constraints that prevent private investors from initiating disputes. Source country governments can also find it more worthwhile than firms to pursue particular types of disputes. For instance, formal settlement of a dispute can contribute to the case law, which increases the efficiency of future dispute settlement. Such spill-over effects would be particularly likely to occur in case of policy measures that affect multiple firms in an industry. Similarly, fixed costs for legal processes might prevent individual investors from pursuing disputes that would be profitable at an industry level. The source country government could then act as a substitute for investor class action. Including both ISDS and SSDS in an agreement then increases the source country freedom to pick the least-cost enforcement of the agreement, which in turn increases the bargaining surplus compared to an agreement that relies exclusively on ISDS or SSDS.

Equilibrium disputes Our framework does not generate any disputes in equilibrium. Whenever regulation of the firm is consistent with the stipulations of the agreement, the host country will immediately compensate the investor for its full foregone operating profit if such compensation is required. But the *threat* of disputes and the associated political costs can still affect the negotiated investment protection and dispute settlement. Other models (e.g. Aisbett, Karp and McAusland, 2010a; Ossa, Staiger and Sykes, 2020) feature equilibrium disputes that occur because the tribunal cannot perfectly monitor the state of the world. This deficiency creates an incentive for the host country to regulate without paying required compensation and for the investor (or source country

under SSDS) to litigate in order to correct this injustice. Excessive litigation can also occur in the aspiration to obtain undue compensation payments.

Monitoring and verification problems are surely highly relevant for actual arbitration, but is nonetheless insufficient to generate equilibrium arbitration if the host country and the investor (or source country under SSDS) can settle prior to adjudication. The costs and the risks involved with arbitration imply that there are gains from settling without invoking a tribunal. Indeed, many investment agreements contain provisions that encourage and enable amicable dispute settlement. It is also very common in practice that disputes do end with peaceful settlement. The models that generate equilibrium arbitration assume that compensation can only be implemented through formal dispute settlement, in contrast to the present model which allows the host country to pay compensation precisely to avoid a costly legal process.

In light of the numerous disputes that have been handled through formal dispute settlement, it would obviously be interesting to explore models that can feature equilibrium disputes even if peaceful settlement is an option. Disputes can, for instance, be driven by the parties' different views concerning the likelihood of succeeding in a litigation. Multi-sided informational asymmetry is a general source of inefficiency in contractual relationships, which in the present context would occur as arbitration through ISDS or SSDS. It also seems plausible that host country governments may engage in disputes for domestic political reasons, or as a strategy to deter future litigation. Similar mechanisms have been analyzed in incomplete information games.

Investment protection is insensitive to industry-specific circumstances We have considered an agreement that is tailor-made for one particular industry. But investment agreements typically have economy-wide application with few industry-specific obligations. To illustrate potential implications of such rigidity, assume that Foreign firms can invest in two economically unrelated industries in Home. The investment agreement specifies a single level of protection $\hat{\theta}$ that applies to both industries. Assume for simplicity that the source country is the dominant party in the negotiations and can set $\hat{\theta}$ unilaterally. It then chooses investment protection such that the host country is indifferent between accepting and rejecting the agreement. The host country must then lose from the inclusion of one of the sectors in the agreement if the two industries differ in the welfare they generate for the host country. Denote the losing industry by z .

Consider now the implication of excluding ISDS. If the political enforcement costs under SSDS are sufficiently high that Foreign will never enforce any investment protection in industry z , investors will no longer expect any protection in this sector. They will therefore invest in industry z as if there was no agreement. Excluding ISDS with unchanged investment protection can therefore enable the host country to escape harmful protection commitments in certain industries, when obligations are not fully adapted to industry-specific conditions.

This is still not a very strong argument in favor of SSDS. There is no guarantee that the unravelling of the agreement occurs only in industries where the host country would prefer there

to be no agreement. Also, exclusion of ISDS might plausibly lead to a renegotiation of the level of investment protection. However, these mechanisms do illustrate why it might be interesting to address questions related to dispute settlement in agreements that lack industry-specific obligations.

A Appendix

A.1 Proof of Lemma 1

If $\hat{\theta} - \Theta(K(\hat{\theta})) \leq 0$ for some $\hat{\theta} \in (\theta^0, \bar{\theta}]$, then there exists $\theta_t^0 \in [\hat{\theta}, \bar{\theta}]$ such that $\theta_t^0 - \Theta(K(\theta_t^0)) = 0$ by $\bar{\theta} - \Theta(K(\bar{\theta})) \geq 0$ and an application of the Intermediate Value Theorem. The pair (k_t^0, θ_t^0) , where $k_t^0 = K(\theta_t^0)$, constitutes a Nash equilibrium of the game when there is no investment agreement. Since $\theta_t^0 \geq \hat{\theta} > \theta^0$, this contradicts the assertion that (k^0, θ^0) is the maximal equilibrium. Hence, $\hat{\theta} > \Theta(K(\hat{\theta}))$ for all $\hat{\theta} \in (\theta^0, \bar{\theta}]$. ■

A.2 Proof of Lemma 2

Suppose $\hat{\theta} \leq \theta^0$. If the firm invests k^0 , then the host country prefers production to regulation for all $\theta \leq \theta^0 = \Theta(k^0)$ even if regulation is completely without cost, since $V(k^0, \theta) \geq V(k^0, \theta^0) = 0$ for all $\theta \leq \theta^0$. Conversely, it is optimal to regulate without compensation for all $\theta > \Theta(k^0) \geq \hat{\theta}$. Since k^0 yields the threshold θ^0 for regulation, and k^0 is the profit-maximizing investment given the threshold θ^0 , (k^0, θ^0) can be sustained as an equilibrium also under the proposed agreement. As (k^0, θ^0) is the maximal equilibrium, this is the one that will be implemented by way of the assumption regarding equilibrium selection. Since $\tilde{X}(\hat{\theta}, \delta) = \tilde{v}^0$ and $\tilde{Y}(\hat{\theta}, \delta) = \tilde{\pi}^0$, no country strictly benefits from this agreement. Hence, any investment agreement that strictly increases joint surplus, features $\hat{\theta} > \theta^0$. ■

A.3 Proof of Lemma 5

Suppose the firm has invested $K(\theta')$ in the expectation that the agreement will enforce investment protection $\theta' \leq \hat{\theta}$ under SSDS. Dispute settlement only matters for the implemented investment protection if $\Theta(K(\theta')) < \hat{\theta}$ and in that case only for shocks $\theta \in (\Theta(K(\theta')), \hat{\theta}] \equiv \Lambda(\theta', \hat{\theta})$. The host country will always allow production for shocks $\theta \leq \Theta(K(\theta'))$ even absent any agreement and legally regulate without compensation for all $\theta > \max\{\hat{\theta}; \Theta(K(\theta'))\}$. We first characterize the implemented investment protection $L(\theta', \hat{\theta})$.

Denote by $L^F(\theta', \hat{\theta})$ the implemented investment protection offered through source country enforcement in an agreement with stipulated investment protection $\hat{\theta}$ and investment $K(\theta')$ if this is the only way to enforce the agreement. For $\theta \in \Lambda(\theta', \hat{\theta})$, the investor will recover its operating profit by the threat of litigation through SSDS if:

$$\Pi(K(\theta')) \geq N^F(K(\theta'), \theta, \hat{\theta}).$$

By monotonicity of $N^F(k, \theta, \hat{\theta})$ in θ , $L^F(\theta', \hat{\theta}) \equiv \hat{\theta}$ if $N^F(K(\theta'), \hat{\theta}, \hat{\theta}) \leq \Pi(K(\theta'))$ and $L^F(\theta', \hat{\theta}) \equiv \Theta(K(\theta'))$ if $N^F(K(\theta'), \Theta(K(\theta')), \hat{\theta}) \geq \Pi(K(\theta'))$. For intermediary enforcement cost, the source country will only enforce the agreement for sufficiently mild shocks, $\theta \in (\Theta(K(\theta')), L^F(\theta', \hat{\theta})]$, where

$$\Pi(K(\theta')) \equiv N^F(K(\theta'), L^F, \hat{\theta})$$

defines $L^F(\theta', \hat{\theta}) \in (\Theta(K(\theta')), \hat{\theta})$.

Denote by $L^{H1}(\theta', \hat{\theta})$ the actual investment protection offered through the host country's preference for regulation with immediate compensation relative to engaging in opportunistic regulation, given stipulated investment protection $\hat{\theta}$ and investment $K(\theta')$, if this is the only way to enforce the agreement. The investor can rely on the host country to honor the agreement for $\theta \in \Lambda(\theta', \hat{\theta})$ if

$$M^H(K(\theta'), \theta, \hat{\theta}) \geq \Pi(K(\theta')).$$

By monotonicity of $M^H(k, \theta, \hat{\theta})$ in θ , $L^{H1}(\theta', \hat{\theta}) \equiv \hat{\theta}$ if $M^H(K(\theta'), \hat{\theta}, \hat{\theta}) \geq \Pi(K(\theta'))$ and $L^{H1}(\theta', \hat{\theta}) \equiv \Theta(K(\theta'))$ if $M^H(K(\theta'), \Theta(K(\theta')), \hat{\theta}) \leq \Pi(K(\theta'))$. For intermediary political cost, the host country honors the terms of the agreement if $\theta \in (\Theta(K(\theta')), L^{H1}(\theta', \hat{\theta})]$, where

$$\Pi(K(\theta')) \equiv M^H(K(\theta'), L^{H1}, \hat{\theta})$$

defines $L^{H1}(\theta', \hat{\theta}) \in (\Theta(K(\theta')), \hat{\theta})$.

Denote by $L^{H2}(\theta', \hat{\theta})$ the actual investment protection offered through the host country's preference for production relative to engaging in opportunistic regulation, given stipulated investment protection $\hat{\theta}$ and investment $K(\theta')$, if this is the only way to enforce the agreement. For $\theta \in \Lambda(\theta', \hat{\theta})$, the host country prefers production to opportunistic regulation if

$$V(K(\theta'), \theta) \geq -M^H(K(\theta'), \theta, \hat{\theta}).$$

By monotonicity of $V(k, \theta)$ and $M^H(k, \theta, \hat{\theta})$ in θ , $L^{H2}(\theta', \hat{\theta}) \equiv \hat{\theta}$ if $V(K(\theta'), \hat{\theta}) + M^H(K(\theta'), \hat{\theta}, \hat{\theta}) \geq 0$. If the value of production is small, $V(K(\theta'), \hat{\theta}) + M^H(K(\theta'), \hat{\theta}, \hat{\theta}) < 0$, then the host country allows production for all shocks $\theta \in (\Theta(K(\theta')), L^{H2}(\theta', \hat{\theta})]$, where $L^{H2}(\theta', \hat{\theta}) \in (\Theta(K(\theta')), \hat{\theta})$ is defined by:

$$V(K(\theta'), L^{H2}) \equiv -M^H(K(\theta'), L^{H2}, \hat{\theta}).$$

The actual investment protection implemented through the source country and host country incentive compatibility constraints under SSDS is given by

$$L(\theta', \hat{\theta}) \equiv \max\{L^F(\theta', \hat{\theta}); L^{H1}(\theta', \hat{\theta}); L^{H2}(\theta', \hat{\theta})\}.$$

in an agreement with stipulated investment protection $\hat{\theta}$ where the firm has invested $K(\theta')$ in

the expectation of receiving investment protection $\theta' \leq \hat{\theta}$. The function $L(\theta', \hat{\theta})$ is continuous by continuity of $V(k, \theta)$, $\Pi(k)$ and $K(\theta')$ and by the properties of $N^F(k, \theta, \hat{\theta})$ and $M^H(k, \theta, \hat{\theta})$. If the firm has invested $K(\hat{\theta})$ and either (8), (9) or (10) holds so that $\hat{\theta} \in A$, then the configuration of political costs implements stipulated investment protection $\hat{\theta}$. The firm's expectation of investment protection $\hat{\theta}$ is confirmed in this case: $L(\hat{\theta}, \hat{\theta}) = \hat{\theta}$.

If the source country enforcement cost is large, $N^F(K(\hat{\theta}), \hat{\theta}, \hat{\theta}) > \Pi(K(\hat{\theta}))$ and the host country political cost of opportunistic regulation is small, $M^H(K(\hat{\theta}), \hat{\theta}, \hat{\theta}) < \min\{\Pi(K(\hat{\theta})); -V(K(\hat{\theta}), \hat{\theta})\}$, so that $\hat{\theta} \in A^c$, then a firm that has invested $K(\hat{\theta})$ will receive less investment protection than stipulated in the agreement because of opportunistic regulation by the host country: $\hat{\theta} - L(\hat{\theta}, \hat{\theta}) > 0$. Suppose instead the investor is very pessimistic and anticipates that the agreement will offer no investment protection beyond what the investor would receive without any agreement, $\theta' = \theta^0$, and invests accordingly, $K(\theta') = k^0$. In this case

$$V(k^0, \theta^0) + M^H(k^0, \theta^0, \hat{\theta}) = M^H(k^0, \theta^0, \hat{\theta}) > 0$$

implies $L^{H2}(\theta^0, \hat{\theta}) > \theta^0$ and therefore $\theta^0 - L(\theta^0, \hat{\theta}) < 0$. This pessimistic belief understates actual investment protection.

By continuity of $L(\theta', \hat{\theta})$ in θ' , we can apply the Intermediate Value Theorem to establish existence of $\theta' \in (\theta^0, \hat{\theta})$ with the property $\theta' = L(\theta', \hat{\theta})$. For all such θ' a firm that invests $K(\theta')$ will receive investment protection θ' . There can be multiple such θ' , so we define $G(\hat{\theta})$ as the maximal solution in $(\theta^0, \hat{\theta})$ that features $\theta' = L(\theta', \hat{\theta})$. Hence, $G(\hat{\theta})$ is the maximal investment protection that an investor can receive in rational expectations equilibrium when an agreement with SSDS cannot implement $\hat{\theta}$ subject to investment $K(\hat{\theta})$. Since $G(\hat{\theta}) < \hat{\theta}$, this investment protection solves either (13) or (14).

If the firm has invested $K(G(\hat{\theta}))$, the host country allows production for all $\theta \leq G(\hat{\theta})$ if $\Pi(K(G(\hat{\theta}))) \leq -V(K(G(\hat{\theta})), G(\hat{\theta}))$. In the opposite situation, $\Pi(K(G(\hat{\theta}))) > -V(K(G(\hat{\theta})), G(\hat{\theta}))$, the host country allows production for all $\theta \leq \Theta^J(K(G(\hat{\theta})))$ and regulates with immediate compensation for all $\theta \in (\Theta^J(K(G(\hat{\theta}))), G(\hat{\theta})]$. Either way, the host country engages in opportunistic regulation for all $\theta \in (G(\hat{\theta}), \hat{\theta}]$ and legally regulates without paying compensation for all $\theta > \hat{\theta}$ if $\hat{\theta} < \bar{\theta}$. The host country expected welfare and the source country expected welfare are then given by (11) and (12).

To verify that the agreement indeed implements $(K(G(\hat{\theta})), G(\hat{\theta}))$, we need to show that the agreement cannot implement any investment protection $\theta' > G(\hat{\theta})$. Suppose the firm expects investment protection $\theta' \in (G(\hat{\theta}), \hat{\theta}]$ and invests $K(\theta')$ accordingly. Since $G(\hat{\theta})$ is defined as the maximal fixed point contained in $(\theta^0, \hat{\theta})$, $\theta' > L(\theta', \hat{\theta})$ for all $\theta' \in (\theta^0, \hat{\theta})$, which is inconsistent with rational expectations. This holds also for $\theta' = \hat{\theta}$ since $\hat{\theta} > L(\hat{\theta}, \hat{\theta})$ by $\hat{\theta} \in A^c$. Suppose the firm expects investment protection $\theta' > \hat{\theta}$, $\hat{\theta} < \bar{\theta}$, and invests $K(\theta') > K(\hat{\theta})$. Since $\theta' > \theta^0$, $\theta' > \Theta(K(\theta'))$ by Lemma 1. Therefore, $V(K(\theta'), \theta) \leq V(K(\theta'), \theta'') < V(K(\theta'), \Theta(K(\theta'))) = 0$ for all $\theta \in [\theta'', \bar{\theta}]$,

and some $\theta'' \in (\max\{\Theta(K(\theta')); \hat{\theta}\}, \theta')$. The host country will therefore regulate without paying compensation for all $\theta \in [\theta'', \bar{\theta}]$. Since $\theta'' < \theta'$, this is again inconsistent with the firm's expectation of investment protection θ' . ■

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