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JEL Codes: F13, F23, K33, K41, L51.

Keywords: Multilateral trade agreements, Dispute resolution, Arbitrators, Collusion, Regulatory chill.

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Pro-business arbitration with ISDS

Bernard Caillaud* and Ariane Lambert-Mogiliansky†

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Abstract

In this paper we investigate the Investor-State Dispute Resolution Settlement (ISDS) framework, which governs dispute resolution between foreign investors and host states in many bilateral and multilateral trade agreements. We show that ISDS delivers fair justice in a one-shot setting. In a repeated-interaction setting however, it is prone to collusion to the benefit of all parties except the host states. Three factors are determinant: First, the investors are the sole parties able to file cases; Second, arbitrators' earning prospects depend on the investors' filing cases; And finally, treaties leave substantial discretion to arbitration courts in their interpretation of treaties' provisions. We give conditions for pro-business collusion between investors and arbitrators to develop and we show how it makes it profitable for foreign investors to file high-stake claims against states in response to new environmental, social or health regulations. Further, we address regulatory chill and show how the fear of ISDS attacks can hold back welfare improving regulation in the host country. Finally, we extend the model to show how regulatory chill affect policy-making in other countries in which the investor operates with similar activities.

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1 Introduction

The protection of foreign investment has become one of the most controversial issues in global governance. At the center of this controversy is a provision present in international bilateral and multilateral trade agreements that gives to private arbitration courts the authority over sovereign states' judicial institutions to resolve disputes between foreign investors (we shall refer to them as Multi-National Corporations or MNC) and host states. The system is known as Investor-State Dispute Settlement or ISDS. ISDS relies on private arbitrators, most often 3 arbitrators, who form an arbitral court that determines the amount of money that the respondent state must pay the MNC in compensation for the negative impacts of its decisions on the MNC's earning prospects.

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A number of ISDS cases have raised public outrage. Among the most well-known is Philip Morris suing Uruguay (and later Australia) over government health warnings on cigarette packs and other measures to reduce smoking, a regulation in conformity with the WHO Framework Convention on Tobacco Control that Uruguay had ratified.¹ Another case relates to Swedish energy giant Vattenfall that sued Germany for €6.1 billions (updated as of 2021) appealing to the Energy Charter Treaty (hereafter ECT), as Germany decided in 2014 to phase out nuclear power after the Fukushima disaster.² In 2019, German RWE sued the Dutch government for its coal phase-out act demanding €1.4 billions, appealing to the same ECT.³ In 2020 German Uniper was under "amicable negotiations" with the Dutch government (after a threat of launching an ISDS claim) for compensation (Cotula-Tienhaara, 2020).

As these examples demonstrate, governments and other public entities have been challenged by corporations for trying to introduce regulation within the frame of their environmental, social and health policy-making.⁴ While initially aimed at protecting investor against expropriation, ISDS challenging new regulations have become the dominating type of dispute since the mid-90s (Pelc, 2017). Since the mid-90s, we have also seen a sharp increase in the number of cases where the defendant state is a developed countries. In 2020, 15% of all cases were intra-European disputes.⁵ The question stands as to whether the above mentioned (outrageous) cases are "accidental" misuses of ISDS or the expression that ISDS is by construction rigged against national states to the benefit of MNCs, as many critics purport.⁶

In this paper, we contribute to the debate on ISDS by providing a game theoretical analysis of the interaction between MNCs, lawyers and states. We investigate how the formal legal ISDS framework may guarantee or jeopardize the fairness of arbitration in investors - states disputes. More precisely, we characterize the conditions for pro-business collusion between arbitrators and MNCs to arise in equilibrium in a repeated interaction setting that captures some basic features of ISDS and show that it leads to an increase in high-stake cases. We also reveal the chilling effect of such collusion on states' policy-making.

Formally, we analyze a model that involves three types of players: MNCs, states and private lawyers, with the following features: i) The MNCs are the sole players with the right to initiate a case and they choose the magnitude of their claim; ii) In each dispute, the 3 arbitrators are selected respectively by the MNC, the respondent state and the third arbitrator is chosen by the two first selected arbitrators; iii) The arbitral courts have substantial discretion in the interpretation of ISDS provisions; and iv) Arbitrators are rewarded on a case by case basis. MNCs maximize intertemporal profits, states maximize their citizen's intertemporal welfare net of public spending, and lawyers are concerned with their intertemporal income

¹The company did not win but the measure was delayed by several years and the case imposed significant costs on the defending states.

²The case was settled in 2021 for €2,9 billions.

³The act banned coal power generation from older plants from 2025 on and from newer plants from 2030 on.

⁴Financial stability measures have also been targeted by ISDS e.g., in Argentina (see e.g., Park et al. 2017).

⁵This is important since a primary justification for ISDS has been that host states do not provide sufficient guarantees in terms of rule of law which obviously does not apply to e.g., Germany.

⁶In 2017, 230 US Law and Economics professors wrote a letter to the US President asking to exclude ISDS from Trade Agreements because it infringes on the Federal State, states' and localities' legal sovereignty and contradicts fundamental principle of democratic legitimacy.

and they value professional ethics. We distinguish two types of dispute, regular cases and high-stake cases. A regular dispute involves claims for compensation related to direct expropriation or discriminatory regulatory decisions. High-stake disputes involve (often large) compensation claims appealing to a pro-business interpretation of the provisions of the treaties related to e.g. "indirect expropriation", "Fair and Equitable Treatment" (see Section 2).

We find that in a one-shot setting ISDS delivers fair justice in the sense that, on the one side, it effectively protects investors against expropriation and discrimination and, on the other side, it protects states from abusive claims. In equilibrium, only regular claims are filed and these are resolved by the arbitral court fairly. Things change dramatically as we consider the repeated interaction setting that, we argue, is the proper setting to analyze. We find that ISDS is prone to pro-business collusion between MNCs and lawyers at the expense of the states and we discuss the conditions for existence of such a collusive equilibrium. Lawyers are willing to forego ethics in exchange for the high payoffs associated with frequent high-stake cases and MNCs are willing to submit high-stake claims because collusive arbitrators secure sufficient odds for a favorable outcome. We next find that the existence of Third Party Funding facilitates collusion, further increasing the number of high-stake cases filed in equilibrium. Finally, we amend our basic model to address the issue of regulatory chill by endogeneizing states' policy decisions. We find that, when they anticipate pro-business ISDS, states refrain from welfare improving policies as suggested by the empirical literature. We finally consider a setting in which two states sequentially consider enacting similar regulatory measures with potential impact on the same MNC's activities in these two states. We find that pro-business ISDS can give rise to interesting dynamics of regulation deterrence across borders. We establish that the correlation between states increases the number of attacks and deters regulation in the first running state, compared to a situation without correlation.

Our analysis provides support to the view that ISDS is by construction prone to pro-business arbitration as soon as its intertemporal dimension is taken into account. MNCs with exclusive power to file cases share their interest for high-stake cases with arbitration lawyers who can secure MNC favorable arbitration outcomes by adopting a pro-business interpretation of treaties' provisions. Once pro-business collusion is in place, it acts as a powerful deterrent on states' regulatory policy-making. Our results also demonstrate how collusion in ISDS implies a shift in effective power over sovereign states' policy-making (beyond the historical status-quo) from democratically elected governments to unaccountable MNCs.

The results in this paper also contribute to breaking the "myth" about ISDS arbitrators' impartiality. First, we show how they may easily share interests for high-stake cases with MNCs at the expense of states. Second, the ISDS institution does not provide safeguards against pro-business (biased) arbitration practice. Since MNCs are the sole initiators of cases (i.e., the primary source of arbitration lawyers' business) and there is no court of appeal, there is no safeguard of impartiality. This contrasts with the public judicial system where judges' impartiality is protected by stable salaries and employment security while their argumentation and judgment are constrained by precedents and courts of appeal as well as by accountability to their peers.

This paper contributes to a vast literature on ISDS most of which has been within the field of law (for a survey see e.g. Frank and Wylie, 2015, de Mestral ed., 2017). Within economics, the literature is smaller. An important contribution was made by Aisbett et al. (2010a). They provide a contract theoretical approach to regulatory takings. In their (2010b) paper, they study the optimal "carve outs", i.e. limitations to MNC's right for compensations, so that investor protection achieves efficient regulation and investment level. Horn and Tangerås (2021) are interested in the efficiency properties of investor compensation. They address regulatory chill to dismiss the risk of under-regulation. Konrad (2017) starts with identifying over-investment incentives for domestic investors leading to permissive regulation. He then shows that the introduction of an ideal ISDS mechanism (cost free and with unbiased arbitrators) tends to magnify over-investment from large foreign investors and overly permissive regulation. Schjelderup and Stahler (2012) show why multinational firms have an interest in ISDS provisions beyond potential compensation as it allows them to be more aggressive on markets. Most economics papers assume well-functioning and fair ISDS procedures. But a great deal of criticism against ISDS regards the practice i.e., how stated limitations and other provisions are interpreted. The essential part of this criticism can be found in law journals (see e.g. for a review Franck and Wylie, 2015). Stiglitz (2017) questions the legal and democratic legitimacy of ISDS as supra-national justice. He also questions the very foundations of ISDS in terms of property rights. He argues that the accepted principle that "the polluter pays" is inverted by ISDS. MNCs are entitled to compensation for reducing their negative impact on the environment or on health. The first formal approach to "regulatory chill" (under-regulation due to ISDS) is due to Janebo (2019). The approach is however very different from ours in particular the ISDS court is a non-strategic actor. In contrast, understanding arbitration lawyers' strategic interaction with the MNC and the states is at the core of our argument. Our paper is also related to a recent literature on "deep trade agreements" that recognizes that "recent trade agreements are not today about tariffs but revolve largely around non-tariff issues such as regulation".⁷ Maggi and Ossa (2020) study the impact of special interest pressure on the welfare properties of trade agreements with respect to product standards and process standards. They characterize conditions for governments under lobbying pressure from domestic producers to agree on regulatory provisions and institutions that reduce social welfare. ISDS is a "deep trade agreement" institution (although not a recent one, see section 2). We show how it can serve the special interests of foreign investors at the expense of social welfare.

On the empirical side, Pelc (2017) provides an interesting contribution addressing in particular the new wave of ISDS cases targeting regulatory decisions in developed countries. His empirical study shows that ISDS attacking regulatory decisions have a lower success rate and go more often to decision (than settlement). This suggests that the puzzle of a diminishing rate of success of ISDS can be explained by the fact that the objective is not only to obtain compensation but to send a message to other states. Our results about cross-borders regulatory chill provide some underpinning for his suggestion. Tienhaara (2018) and Cotula-Tienhaara (2020) address the implications of ISDS for environmental policies. They

⁷See Maggi - Ossa (2020), p.1.

focus on the use of ISDS (appealing to the ECT) by the fossil fuel industry threatened by governments' phase-out policies in response to the climate crisis. Our contribution is to provide a theoretical underpinning to some of the arguments put forward in the debate on ISDS including its partiality and the social economic inefficiency of its chilling impact on regulatory policy-making.

The remaining of the paper is structured as follows. Section 2 provides some basic facts about ISDS. Section 3 presents the model. Section 4 derives fair justice outcome in the one-period setting. In Section 5 we establish the core result of the paper about collusion in the repeated interaction setting. Section 6 addresses regulatory chill effects. Section 7 concludes and discusses possible extensions.

2 Basic facts on Investment-State Dispute Settlement

Foreign investment protection agreements have steadily increased in number and complexity since the first modern agreement was signed between Germany and Pakistan in 1959. Today, they take the form of at least 3,000 bilateral investment treaties and several hundred investment protection chapters in bilateral and multilateral regional trade agreements. Most of these agreements include dispute settlement provisions. Some of these provisions rely on traditional state-to-state dispute settlement, but the great majority have come to provide for investor-state arbitration. Under this system, the treaty serves as the basis for claims by foreign investors that they have suffered economic harm as a result of an alleged violation of one or more of the various standards of treatment set out in the treaty.

The initial objective of ISDS was to protect MNCs against expropriation in post-colonial weak governance countries and to "de-politicize" the disputes. This reflected the view that the administrative procedures or standards of judicial independence were often imperfect in many newly independent countries, and that investment disputes could not be left to be decided by the institutions of the host state alone. The move towards guaranteeing protection of foreign investment in developing countries received considerable encouragement from the Washington Consensus of 1989. This reflected a major policy shift by developing countries away from the policies of import substitution and autonomy toward policies based on liberal trade.

While originally focused on protection against the expropriation of tangible assets, the doctrine started to evolve in the 90s in several directions within the discretionary space left by the vagueness of the treaties' provisions. Most importantly, it now includes so called *indirect expropriation* which covers public decisions that curtail the use of assets and thereby reduces MNCs' profits.⁸ Next, from focusing on compensation for expropriated assets, it now covers reduced profit opportunities under *the whole lifetime* of the project. In addition, while previously focusing on discriminatory regulatory decisions, it addresses nowadays *any regulatory decision* independently of their legitimacy. The Energy Charter Treaty Secretariat (2012) writes "*The relevance of government intent or motive, particularly if the measure impacting the investment*

⁸As discussed in Van Harten, Porterfield and Gallagher (2015), provisions on indirect expropriation represent one of the most significant source of rights for foreign investors.

is a regulatory one, is unsettled in investment law with tribunals adopting different approaches". The ECT has emerged in 1994 to deal with international energy supply issues. This treaty has been ratified by two organizations (the European Union and the European Atomic Energy Community) and 53 countries. It is viewed as a major obstacle on the path to the states' recently stated commitment to energy transition.

The changes in doctrine mentioned above are closely related to a central assumption in the analysis that follows, namely that the provision for ISDS in International Trade Agreement leaves substantial discretion to arbitration courts. As well-documented (see e.g. UNCTAD, 2012), the leeway in interpretation allows for pro-business argumentation by arbitrators and pro-business court decisions without being in conflict with treaties. In particular, in most investment treaties, states commit to providing Fair and Equitable Treatment (or FET) to foreign investors. According to the UN International Institute for Sustainable Development,⁹ FET has become a controversial provision as it can turn into a "catch-all" clause for investors, allowing them to succeed where their expropriation, non-discrimination and other claims have failed. Typically, the wording of the treaty does not offer detailed guidance on how dispute settlement bodies should interpret these provisions, resulting in widely differing interpretations—some of which are expansive. A particular problem in this respect is the notion of investors' "*legitimate expectations*," pursuant to which several tribunals have struck down the denial of environmental permits, arguing that the investor had a legitimate expectation to be granted such a permit. More generally, environmental and health regulations have been challenged for alleged violations of FET. Indeed, the "Failure to offer a stable and predictable legal framework" is a recognized violations of FET.¹⁰

In view of the above described developments, it is not surprising that the last decades have seen a very significant increase in the turnover of the so-called international arbitration industry that includes the law firms whose lawyers provide counseling to MNCs and act as arbitrators when nominated. The number of publicly known cases has increased from 12 in 2000 to 68 in 2020, to reach an accumulated number of 1104 by 2020. Because of the secrecy of the procedures, the real figures may be much higher. The Energy Charter Treaty was invoked most frequently under 2020.¹¹

The mean amount claimed has increased significantly: by 2017, it was US\$ 2,376 millions, compared to US\$ 491,7 millions by the end of 2012 (See Hodgson and Campbell, 2017). The market is characterized by a dichotomy with a larger number of claims around a few hundreds of millions and a group of very large claims over a billion often representing a sizable share of the host state budget. When it comes to which party wins, it is important to distinguish between all the cases that are initiated and the cases that fall within ISDS jurisdiction (where the court recognized that the challenged measure is relevant to treaties' obligations). Among all concluded cases (1987-2020), states "won" in 37% (claims were dismissed either

⁹<https://www.iisd.org/toolkits/sustainability-toolkit-for-trade-negotiators/5-investment-provisions/5-4-safeguarding-policy-space/5-4-5-fair-and-equitable-treatment-fet-or-minimum-standard-of-treatment-mst/>. UNCTAD writes similarly "An expansive interpretation of minimalistic treaty language can give rise to a lack of predictability in the application of the standard." (2012)

¹⁰[https://jusmundi.com/fr/document/wiki/en-fair-and-equitable-treatment?su=%2Ffr%2Fsearch%3Fquery%3DFair%2520Equitable%2520Treatment%26page%3D1%26lang%3Dfr&contents\[0\]=en](https://jusmundi.com/fr/document/wiki/en-fair-and-equitable-treatment?su=%2Ffr%2Fsearch%3Fquery%3DFair%2520Equitable%2520Treatment%26page%3D1%26lang%3Dfr&contents[0]=en)

¹¹see UNCTAD (2021) for more precise data.

on jurisdictional grounds or on the merit) and the claimant in 29% of the cases, 20% were settled and 12% discontinued. Settlements are often fully confidential and most often include compensations and sometimes changes in policy decisions. They can thus be viewed as a form of claimant's win.¹² Looking at decisions on merits (excluding the cases dismissed for lack of jurisdiction, settled or discontinued for other reasons), 57% were decided in favor of the claimant (breach found) and damages were awarded, the remainder being dismissed.

Among the arguments used to justify ISDS in trade agreements is that the public judicial system is slow and expensive. However, the costs of ISDS procedures have increased significantly. The mean legal expenditure (up to 2017) for the states were US\$ 4,855 millions and US\$ 6,019 millions for claimants. Of significance for our analysis is that the parties' legal expenditures are positively correlated with the size of the claim (Hodgson and Campbell, 2017). The size and the complexity of modern investment treaty arbitration have also led to an increase in tribunal costs from a mean of US\$ 756,000 before 2012 to US\$ 1,118,000 (2012-2017). The legal expenditures constitute a significant deterrent for the parties. A number of innovations have been developed making it easier and more profitable for MNCs to file cases, including third party funding, and some financialization of ISDS cases can be observed.

For our purpose in this paper, it is of relevance that the market for arbitration is dominated by a few Western law firms (e.g., Freshfields BruckhausDeringer (UK) claims to have acted in 165 investor-state disputes). In addition a small number (15) of elite arbitrators are exerting a huge influence often sitting side by side in arbitral tribunals. Before 2012, those 15 elite arbitrators had responded for 75% of cases of 4 billion and more, 64% of the cases over 100 millions and 55% of all cases (Corporate Europe Observatory, 2012, p.38). In our paper we provide an illustrative presentation of our equilibrium referring to the existence of an exclusive set of lawyers that we call "the club":

3 Model

There are three sets of players: multinational corporations (labelled MNC), national states (labelled S) and (arbitration competent) lawyers. We consider an infinite horizon game with almost-perfect information.

In each period, we suppose that States take public policy decisions that are potentially detrimental to MNCs. The concerned MNCs choose whether or not to dispute the decisions by filing a compensation claim relying on ISDS provisions. When a MNC opts for a dispute, it chooses whether to formulate its claim as a regular case or as a high-stake case. Then, the MNC and the corresponding State each choose an arbitrator from the pool of lawyers. The chosen arbitrators nominate a third lawyer as the president of the arbitration court. The 3 arbitrators choose each their argumentation strategies which together result

¹²Vattenfall attacked with ISDS in 2009 for US\$1,9 billions the city of Hambourg for environmental regulation which affected the water use of its coal plant. The case was settled after a few years out of court with the town withdrawing its regulation.

in a court decision. The judgement is enforced, i.e. compensations are paid according to the court's ruling, and the game moves to the next period.

In the following, we describe each aspect of the model in more details.

Potential disputes. The disputes that we consider concern the compensation for a public decision that has detrimental consequences for the prospects of profit of a MNC. There is a set of m infinitely-lived MNCs and a set of h States. To simplify, all MNCs are engaged in investments in all States. In period t and for all MNC j , a random vector (x_{jt}, r_{jt}, s_{jt}) is drawn from a given joint distribution on $(\mathbb{R}_+ \times \mathbb{R}_+ \times \{1, 2, \dots, h\})^m$,¹³ such that MNC j is impacted by a decision taken by State s_{jt} and can decide to file a case against it.¹⁴ There are two types of cases that can be raised from a dispute, regular cases (denoted R) and high-stake cases (denoted X).¹⁵ For instance the MNC has invested in oil exploration but the project must be stopped because of a new environmental regulation. The MNC may request the State to compensate for all incurred costs: this is an example of a regular case. The MNC can also demand that the State compensates for all the profits it (reasonably) expected to make from the exploitation under the whole life of the project. This is what we call a high-stake or sole-doctrine case.¹⁶ Then, the random variable x_{jt} denotes the gain for the MNC if it files a high-stake case and wins it, and r_{jt} the gain if it files a regular case and wins it. In the model, high stake cases would be dismissed under fair arbitration (see below); so, they can be viewed as abusive in our setting.

MNCs. At the beginning of period t , each MNC j can decide to file a case against one State s_{jt} : the MNC's decision is denoted by $d_{jt} \in \{0, R, X\}$. If $d_{jt} \neq 0$, the MNC then chooses an arbitrator A_{jt}^I and incurs a cost for the procedure $C_{d_{jt}}$, with $C_X \geq C_R$.¹⁷

In each period t , on top of its operating profits Π_{jt} ,¹⁸ MNC j pays the costs of the procedure if it files a case and it cashes in the associated compensation x_{jt} or r_{jt} for a high-stake case or a regular case respectively, in case it wins. The outcomes of disputes being random, the MNC's objective over its infinite horizon is the discounted value of its expected total net flow profits in all periods, with discount factor δ .

States. In period t , if State s_{jt} is attacked by MNC j for some decision it made, its sole action is to choose its arbitrator A_{jt}^S . If the case is of type R or X , it incurs cost D_R or D_X , with $D_X \geq D_R$, and, if it loses, it pays the compensation resulting from arbitration, i.e. r_{jt} or x_{jt} . The State's objective

¹³In the paper, all probability distributions from which the variables are drawn at the beginning of each period are assumed to be absolutely continuous with full support.

¹⁴For simplicity, we assume that each MNC can only file a case against one State.

¹⁵Direct and indirect expropriation are in effect mutually exclusive: only 2% of cases have found both (Pelc, 2017, p 562).

¹⁶The expression "sole-doctrine" case refers to the fact that the case is solved based only on the foregone profit opportunities of the MNC and not at all on whether the public policy that impacts the MNC is reasonable or not.

¹⁷This cost of the procedure incorporates the payment of the share of all the compensations paid to the lawyers participating in the jury as well as other costs associated to the procedure.

¹⁸ $\Pi_{jt} \geq 0$ corresponds to the profit under the disputed regulation. We do not consider the situation where the regulation is suspended under the ISDS proceedings.

corresponds to the intertemporal discounted social welfare, where per-period welfare equals the social gain Z_{jt} generated by the regulation minus all (expected) within period payments that are implied in the procedure.

Lawyers. There is a pool of n lawyers. We assume that $n > 3m$ so that there is no shortage of competent lawyers that would prevent all MNCs to file a case in the same period. Any lawyer from the pool can be nominated to be arbitrator for the state, the MNC or as president of an arbitration court;¹⁹ we let A_{jt}^P denote the president of the court relative to the case filed in period t by MNC j against the corresponding State s_{jt} . When nominated as an arbitrator, a lawyer receives a fixed fee whatever his/her role,²⁰ equal to w in a regular case and W in a high-stake case, and we assume $W \geq w$, consistently with empirical evidence (see the Introduction).

On top of monetary payment, an arbitrator also enjoys an ethical bonus, depending upon whether he abides by the ethical values of the profession.²¹ More precisely, when deliberating about a given case, a lawyer can pick an argumentation strategy within the set $T = \{\tau_n, \tau_b, \tau_s\}$, containing three possible argumentation strategies corresponding to neutral (τ_n), pro-business (τ_b) and pro-state (τ_s) argumentation. A lawyer who is nominated by a party to a dispute enjoys an ethical bonus e for following the argumentation strategy that is most supportive to this party:²² MNC-nominated arbitrators A_{jt}^I earn the bonus e when choosing τ_b and State-nominated arbitrators A_{jt}^S earn the bonus e when choosing τ_s . We assume that the president earns the ethical bonus e when adopting a neutral position, as a judge, i.e. choosing τ_n .²³

Lawyers have all the same objective function: they aim to maximize the discounted expected sum of their monetary revenues and of their monetary-equivalent ethical bonus over their infinite horizon with discount factor δ .

Arbitration. We formalize the nomination process of the president of a court as follows: A_{jt}^I , the MNC arbitrator, proposes a candidate and A_{jt}^S accepts or refuses; if the candidate is accepted, he/she becomes the president A_{jt}^P ; if the candidate is rejected, the president is chosen randomly from the pool

¹⁹We assume for simplicity that one lawyer can play only one such role in each period.

²⁰More precisely, they earn a fixed hourly fee; we assume here that all cases imply the same amount of hours of work for each arbitrator.

²¹We assumed that lawyers have ethical concerns. In the absence of such concerns, collusion is very easy to sustain indeed (see Proposition 2). The magnitude of the ethical bonus is expected to vary among lawyers. Lawyers known for their ethical stand are naturally expected not to be nominated by the MNC or as President. MNC can also weaken the cost of pro-business stand by offering a position within the MNC in case the case turns costly in terms of reputation. There is evidence of revolving doors between MNC and law firms. In addition, the rapid growth of the arbitration industry suggests that a lawyer can make his/her career fully within it.

²²In the basic model we assume that lawyers are identical with respect to the value of the bonus.

²³In principle an arbitrator is a private judge and should not take party. In ISDS with 3 arbitrators, it has become usual to view a party' arbitrators as its advocate. Allowing them to earn a bonus when playing neutral would not affect the main results.

by an authorized third party.²⁴

The outcome of an arbitration is such that either the MNC wins and receives a compensation, or it loses.²⁵ The probability that the MNC wins depends on the type of the case and on the arbitrators' strategies $\tau = (\tau^I, \tau^S, \tau^P) \in T^3$; let $p(\tau)$ denote this probability for a regular case and $q(\tau)$ for a high-stake case, with the following properties :

1. regular cases are easier to win, i.e. $p(\tau) \geq q(\tau)$ for any τ ;
2. the MNC wins more often when more arbitrators choose a pro-business strategy, i.e. there is a ordering $\tau_s < \tau_n < \tau_b$ and $p(\cdot)$ and $q(\cdot)$ are increasing with respect to this ordering;
3. a fair (neutral) argumentation from the president in a high stake (X) case effectively gives credit to the State so that the arbitration court rejects the high stake claim, i.e. $q(\tau_b, \tau_s, \tau_n) = 0$.²⁶

4 Fair justice in the one-period framework

We first analyze a one-period version of the game. We focus on a single MNC-State interaction, as there are no link between two cases in a one-shot setting.²⁷ We therefore omit the index jt in this section.

We proceed by backward induction. When the MNC does not file any case, it simply gets net profits equal to Π . We then distinguish between two sub-games depending on MNC's choice of filing a regular or a high-stake case.

When the MNC chooses to file a regular case, it is immediate that the choice of an argumentation strategy by an arbitrator simply aims at earning him an ethical bonus, since his monetary compensation is fixed. So, A^I chooses τ_b , A^S chooses τ_s and A^P chooses τ_n and the MNC wins its case with probability $p(\tau_b, \tau_s, \tau_n) \equiv p^0$. As all lawyers are identical, all arbitrators are chosen at random among the available lawyers in the pool. Ultimately, the MNC's expected profits for the period are given by: $\Pi + p^0 r - C_R$ and a lawyer who participates in a dispute, whatever his role, earns a payoff equal to $w + e$.

When the MNC chooses to file a high-stake case, the choice of an argumentation strategy is identical to the one made in the regular case because there is no reason to forsake the ethical bonus. The choice of arbitrators is random as in the regular case. Since $q(\tau_b, \tau_s, \tau_n) = 0$, this means that the MNC always loses its case and only has to pay for the fees: $\Pi - C_X$, while any lawyer involved gets a benefit equal to $W + e$.

²⁴Typically it is the Worldbank or UNITRAL.

²⁵This implies that in the basic model we focus on cases which have been recognized to have jurisdiction. In addition we ignore outside courts settlement as possible outcomes.

²⁶This assumption may at first appear ad-hoc. It captures the fact that an impartial (neutral) judge does not adopt the sole doctrine (pro business) approach. Therefore the chance for the MNC to win are minimal when a claim is formulated as a high-stake case.

²⁷To the extent that MNCs and States choose their arbitrators from the pool of lawyers, we assume that there is some coordination so that no lawyer is chosen for 2 different roles in two different disputes. We could also assume that the choice of arbitrators is sequential so that such an event never happens.

The MNC's equilibrium decision is therefore immediate. Since $C_X \geq C_R > C_R - p^0 r$, the MNC never files a high-stake case. It files a regular case whenever $r \geq C_R/p^0$ and refrains otherwise. This conclusion is summarized in the following proposition.

Proposition 1 : *In the one-period interaction case, no high-stake case is ever filed. The MNC files a regular case whenever $r \geq C_R/p^0$. Otherwise, no arbitration takes place. The arbitration court resolves the dispute fairly.*

Proposition 1 establishes that in a one-shot setting ISDS arbitration delivers justice. Both parties, the MNC and the state are treated fairly by the arbitral tribunal. Investors do obtain protection against abusive States since regular cases are solved fairly, and States obtain protection against abusive (high stake) claims since they are not profitable for the MNC. As a consequence of the tribunal's fairness high-stake cases are never filed.

When considering all MNCs in a given period t , let m_t denotes the random variable that corresponds to the number of MNC j such that $r_{jt} \geq C_R/p^0$, and let \bar{m} denote its expected value. In the one-period equilibrium over the entire economy, there are on average \bar{m} regular disputes that are arbitrated and $\bar{m}p^0$ cases that are resolved by a MNC winning it. Ex ante, lawyers in the pool expect a benefit in the period equal to

$$\Omega^0 \equiv \frac{3\bar{m}}{n}(w + e),$$

assuming that one lawyer can be involved in only one dispute per period.

More generally, when lawyers, MNCs and States only meet very seldom or when there is no communication between players from different periods, ISDS deliver justice. A critic from many scholars regarding what we call regular cases is that national courts should handle these cases because the mere cost of ISDS arbitration gives undue advantage to rich MNC. But available data and a host of studies suggest that the business of international arbitration is a very well-structured and tightly connected one so that communication and repetition are critical.

Before addressing the dynamic setting, we note that since $W \geq w$ the lawyers prefer to work on high stake cases and might be willing to forego their ethical principles if the monetary gains are large enough. In addition, if the chance of winning a high-stake case can be made sufficiently large, the MNCs might prefer that as well. This suggests that there is a scope for profitable collusion between the lawyers and the MNCs. The lawyers' collective interest is to credibly increase sufficiently the chance for the MNCs to win so that many MNCs file high stake cases. On their side, the MNCs have an interest in making arbitration in high-stake cases so profitable for lawyers that they are willing to forego ethics and play pro-business.

5 Pro-business arbitration in the dynamic setting

We have seen above that ISDS deliver fair arbitration outcomes in a context where current actions do not affect lawyers' future earning prospects. The very existence of an international arbitration industry with established specialized law firms suggests that this is not the proper setting. Players, in particular lawyers, do meet repeatedly while MNCs and states are aware of previous cases when making their decisions, which calls for investigating a dynamic model. We shall be interested in collusive equilibria that feature high-stake cases being filed and sometimes resolved in favor of MNCs by arbitration courts. So, we now consider the fully dynamic infinite horizon game described earlier. All players have perfect information about the play from previous periods.

5.1 Pro-business collusion in equilibrium

An interesting element in the dynamic setting is the emergence of a "club", i.e. a subset of the pool of all lawyers that consists in pro-business collusive lawyers who benefit from the lucrative high-stake cases. We let b denote the size of this club. The existence of a group of lawyers who are more frequently hired as arbitrators in high-stake cases is confirmed by a host of evidence (see e.g., Corporate Europe Observatory, 2012). In the collusive scheme that we explore, we rely on this club to incentivize arbitrators. This club is not an explicit institution; it is merely a way to describe and summarize the history of the multi-stage game that we analyze in a way that corresponds to a well-documented feature of today's arbitration business. Note that very little will be demanded from the arbitrators chosen by the States. In particular, in the proposed scheme State arbitrators play pro-state. Presumably, if they were to behave openly pro-business that would contribute to undermining the image of the whole system at a time when the ISDS system is in a crisis of legitimacy. The collusive equilibrium that we describe captures main features of today's arbitration business but does not correspond to the maximal collusive profits for MNCs.

More precisely, we shall consider collusion between lawyers and MNCs characterized by the following main properties on the equilibrium path:

- In period t , MNCs with high enough possible high-stake compensations x_{jt} file a high-stake case and hire an arbitrator from the club,²⁸ while States under attack hire arbitrators outside the club; otherwise, a regular case is filed (or none) and parties follow their one-period setting strategies;
- When hired for a high-stake case, a MNC's arbitrator who is a club-member proposes a president arbitrator from within the club, and the State's arbitrator accepts him/her;
- When hired for a high-stake case, the president of the arbitration court (whether member of the club or not) follows a pro-business strategy;
- In all other instances, players follow their one-shot equilibrium strategies.

²⁸See below for what "high enough" precisely means.

Note first that the argumentation strategies followed in a high-stake case are (τ_b, τ_s, τ_b) , which results in MNCs winning their high-stake cases with probability $q^c \equiv q(\tau_b, \tau_s, \tau_b)$.

Let us compare MNC j 's discounted expected profit from period t on for the different options available on the collusive path, when (r_{jt}, x_{jt}) is realized. MNC j earns a profit for the current period equal to $\Pi_{jt} + \max\{p^0 r_{jt} - C_R; 0\}$ if it does not file a high-stake case, and equal to $\Pi_{jt} + q^c x_{jt} - C_X$ if it files a high-stake case. If the continuation payoffs do not depend on this choice at period t , any MNC j such that (r_{jt}, x_{jt}) satisfy

$$q^c x_{jt} - C_X \geq \max\{p^0 r_{jt} - C_R; 0\} \quad (1)$$

will file a high-stake case, while any MNC j such that (1) does not hold will file a regular case or will not sue the corresponding State, according to the one-shot equilibrium strategy. It follows that the expected per-period profits of a MNC on the equilibrium path is given by:

$$\Pi_{jt} + \mathbb{E} [\max\{q^c x_{jt} - C_X; p^0 r_{jt} - C_R; 0\}]$$

which is larger than the expected per-period profits in the repetition of the one-period equilibrium strategies, equal to: $\Pi_{jt} + \mathbb{E} [\max\{p^0 r_{jt} - C_R; 0\}]$. So, if the proposed collusive path can be sustained in equilibrium, it is clearly preferred ex-ante by MNCs to the repetition of the one-period interaction.

We let k_t denote the random number of MNC that file a high-stake case in period t and μ_t the random number of MNC that file a regular case in period t ; obviously, $\mu_t \leq m_t \leq \mu_t + k_t \leq m$ for any t .²⁹ Let also \bar{k} and $\bar{\mu}$ denote the expected value of these numbers, so that $\bar{\mu} \leq \bar{m} \leq \bar{\mu} + \bar{k} \leq m$.

With this notation, we can then write the per-period expected benefit of a lawyer on the collusive path. A lawyer not belonging to the club has a probability $\frac{\bar{k}}{n-b}$ per period of being chosen in a high-stake case by a defending State, earning benefit $W + e$, and a probability $\frac{3\bar{\mu}}{n}$ of being chosen in a regular case, earning $w + e$ whatever his/her role.³⁰ So the per-period expected benefit of a lawyer who is external to the club is

$$\Omega_{ext}^1 \equiv \frac{\bar{k}}{n-b}(W + e) + \frac{3\bar{\mu}}{n}(w + e).$$

Assuming that the size of the club remains constant at b , a lawyer who is a member of the club has also a probability $\frac{3\bar{\mu}}{n}$ of being chosen in a regular case, a probability $\frac{\bar{k}}{b}$ of being chosen in a high-stake case by a MNC, earning benefit $W + e$, and a probability $\frac{\bar{k}}{b}$ of being chosen as president in a high-stake case, earning benefit W since he/she then loses his/her ethical bonus. Such a lawyer from the club faces a per-period expected benefit on the collusive path equal to:

$$\Omega_{club}^1 \equiv \frac{\bar{k}}{b}(2W + e) + \frac{3\bar{\mu}}{n}(w + e).$$

Note that $\Omega_{club}^1 > \Omega_{ext}^1$ if and only if:

$$(2n - 3b)W + (n - 2b)e > 0,$$

²⁹Of course, the distribution of these random variables can be deduced from the overall distribution of (x_{jt}, r_{jt}) across MNCs, although it is not necessary to do it for our purpose.

³⁰Note that this assumes that the state chooses its arbitrator from the pool.

so that a lawyer is better off as a club members if $n > 2b$. Comparing now Ω_{club}^1 with Ω^0 , the expected benefit in the one-period interaction setting, we easily obtain:

Lemma 1 : *Arbitrators from the club prefer the per-period collusive payoffs to the one-period payoffs if $n > 3b$.*

Assuming from now on that $n > 3b$, the collusive path that we explore is indeed preferred by MNCs and by club-lawyers to the repetition of the one-period interaction. So, with high enough discount factor, it is easy to incentivize these players to play differently from their one-period interaction equilibrium strategies. States and non-club arbitrators, however, may be hurt by the emergence of collusion compared to their one-period interaction benefits. States, however, have no way to oppose collusion since they only decide upon their arbitrators (outside the club). Non-club arbitrators, however, may have some power to oppose collusion: as States' arbitrators, they could oppose the nomination of a president from within the club and, as possible presidents, they could adopt a neutral argumentation strategy.

Our collusion equilibrium relies on the following endogenous club governance, which is an equilibrium construction. The club keeps a fixed size b but its composition possibly varies from one period to the next so as to provide appropriate incentives: getting promoted as a club member can be used as a disciplining reward for an external president who plays pro-business and getting kicked out of the club can be used as a disciplining punishment for a club-president who does not play pro-business. The replacement process is designed so as to be neutral for other players' incentives. Namely, the non-club president is incentivized by replacing the MNC's arbitrator in the club;³¹ and a club-president is incentivized by being replaced by a randomly drawn external arbitrator if he/she deviates from the pro-business argumentation strategy. So, the only relevant part of history that matters at period t is summarized by the composition of the club and collusion proceeds period after period.

The formal proof of the proposition is straightforward; it analyzes precisely the equilibrium conditions for all possible sub-games and characterizes the precise threshold value for the discount factor so that appropriate incentives are designed to support the collusive outcome.

Proposition 2 : *Assuming $n > 3b$,*

i. collusion in ISDS arbitration can be sustained among MNCs and lawyers provided they are sufficiently patient, i.e. provided that lawyers' common discount factor δ satisfies

$$\delta \geq \frac{b(n-b)e}{b(n-b)e + \bar{k}[(2n-3b)W + (n-2b)e]}. \quad (2)$$

ii. The collusive equilibrium relies on the existence of a club, an exclusive subset of the pool, which serves as an instrument to provide lawyers with incentives to play the collusive strategies.

Proof. The strategies of this subgame perfect equilibrium only depend upon the players' beliefs summarized by the composition of the club at period t and on the precise moves within period t . On path, the

³¹Indeed, in this off-path event, the MNC's arbitrator has failed to impose a club member as president and can arguably be considered as accountable for the situation.

strategies have been described in the text. Off-path within period t , several deviations are inconsequential, i.e. other players play as if they did not happen. These are:

- a MNC deviates in its choice of litigation at t or chooses an arbitrator who is not a member of the club;
- the MNC's arbitrator does not follow a pro-business argumentation strategy;
- the State's arbitrator is chosen in the club or does not follow a pro-state argumentation strategy.

In all these cases, players obviously play their short-term best-responses on-path so that no incentives are necessary to support their moves in equilibrium.

There are only two types of history that might trigger off-path actions, both related to the incentives of the court's president: (i) when the court president turns out not to be a member from the club, a case that may occur if the MNC's arbitrator did not propose a president from within the club or because the State's arbitrator has refused the proposal of a president from within the club; and (ii) when a president in a high-stake case does not adopt a pro-business argumentation strategy.

Let's first analyze deviations by an appointed president. Whether this president is from the club (on-path) or external to the club (off-path), the trade-off he/she faces is the same: he/she may choose to be neutral, earning the ethical benefit e in the short run and being expelled from the club if he/she is an incumbent or remaining external to the club; or, he/she may choose the pro-business argumentation strategy, foregoing any ethical bonus in the short run but securing club membership in the future. So, no president will ever deviate if:

$$W + \frac{\delta}{1-\delta} \cdot \Omega_{club}^1 \geq W + e + \frac{\delta}{1-\delta} \cdot \Omega_{ext}^1 \Leftrightarrow e \leq \frac{\delta}{1-\delta} \cdot (\Omega_{club}^1 - \Omega_{ext}^1).$$

which is equivalent to condition (2).

Let's turn to the case of possible deviations in the appointment process of the president. Given the promotion mechanism explained in the previous paragraph, the appointed president will adopt a pro-business argumentation strategy thanks to the perspective of entering the club; hence, there is no change whatsoever in the court's decision after the deviation in the appointment process compared to the collusive outcome. The composition of the club is changed, however. Let us analyze precisely all possible cases. If the MNC's arbitrator was a member of the club, the external appointed president is incentivized by replacing the MNC's arbitrator in the club: this provides a strict incentive for the MNC's arbitrator not to propose a president outside the club and it is neutral for the State's arbitrator, and therefore kills off any incentives he/she might have to refuse a proposed president from within the club. If the MNC's arbitrator was not a member of the club (off-path), then he/she is completely indifferent in his/her proposal of a president and, again, has no incentives to propose a president from outside the club. ■

Proposition 2, provides a characterization of the conditions for a realistic form of collusion, which is profitable to MNCs and to club lawyers, to be sustainable in equilibrium. We want to stress that we

investigated a collusive scheme that allows the States' arbitrators to play pro-state, i.e. to provide a fair defense of the States' interest. An alternative would be to have all 3 arbitrators play pro-business which would generate an even higher probability of MNCs' winning high-stake cases and an even more lucrative market (larger k_t). First, the scheme we focus on is more consistent with empirical evidence of pro-state strategies in high-stake disputes. Second, a fully pro-business arbitration would undermined the image of ISDS already in trouble. When states are defended competently, some appearance of fairness is preserved while simultaneously allowing for the development of an extremely lucrative arbitration industry with pro-business resolution of abusive cases.

The comparative statics of condition (2) delivers quite natural conclusions. Any factor that leads to a decrease of the RHS of this inequality favors collusion. First, and unsurprisingly, limited ethical concerns of lawyers (e) obviously facilitate collusion. Similarly, higher arbitrators' fees in high-stake cases (W) facilitate collusion. More interestingly, the larger the market for high-stake cases, i.e. the larger \bar{k} , the stronger the incentives for collusion: when many corporations expect large compensations by filing high stake-cases, the number of these cases grows large and lawyers in the club face the prospects of frequent rewards from participating in the pro-business club. Interestingly, the practice of third party funding (TPF) aimed at reducing the financial risk for MNC increases \bar{k} as we show below. Finally, it appears that the club of pro-business colluding lawyers cannot be too large: b must be small enough ($b < n/3$ is sufficient, while $b > 2n/3$ would cancel the benefit of being a club member) so that the rewards of being appointed in a high-stake case are frequent enough to motivate lawyers to forego their ethical bonuses and participate in collusion.

As in all repeated games, there exists a multiplicity of equilibria in our arbitration game. The pro-business collusive equilibrium that we have depicted is not even the most profitable collusive one (see above) from the MNCs' point of view. Another central equilibrium is the no-collusion equilibrium where the stage game equilibrium strategies are repeatedly played. In this equilibrium, justice is delivered and no high stake case is ever filed. This would be the same outcome as if the arbitrators were public judges with stable employment and fixed salary. Proposition 2's central message is that ISDS procedures *do not* guarantee arbitrators' impartiality and fair justice, as its proponents claim, since pro-business collusion easily emerges as an alternative and quite realistic equilibrium.

It could be objected that pro-States collusion might also emerge. This, however, misses the fundamental asymmetry of the procedure: only MNCs can initiate high stake cases, that benefit arbitrators. Pro-States collusion would cancel the MNCs' incentives to file high stake cases, and therefore would cancel any advantage for the lawyers to enter such collusive agreement; in the end, this would be the no-collusion equilibrium. So, pro-business collusion is the most beneficial form of collusion lawyers can enter and therefore constitutes the most serious risk of distortion of ISDS procedures.

5.2 Third party funding

As the costs and payouts of international arbitration rise, speculative financiers are attracted to investor-state dispute settlement (ISDS) as a potentially rewarding investment opportunity. Third-party funding (hereafter abbreviated TPF) is a growing trend in the world of ISDS. TPF only flows to investor-claimant which further increases the asymmetry in ISDS treatment of investors and states (Garcia, 2018).³² Essentially, funders, predominantly hedge funds or finance firms, agree to cover an investor's litigation fees in exchange for a percentage of the arbitral award, should the tribunal decide in favour of the investor. Repeat funders, such as Burford Capital and Omni Bridgeway, have taken notice of the rapidly increasing business of third-party funding. Omni Bridgeway quadrupled its earnings from litigation investments, reporting AU\$ 170 millions in proceeds from litigation funding in 2020 in comparison to AU\$ 43 millions in 2019.³³

In this subsection, we show that, by reducing the cost of suing for MNC, TPF facilitates pro-business collusion, thereby increasing further the number of high-stake cases.

For this purpose, we introduce the following assumption: it costs the MNC $\$(1 + \lambda)$ to finance \$1 in a ISDS case, with $\lambda > 0$. In practice, MNC may be reluctant to engage funds in uncertain arbitration proceedings or may be credit constrained. The parameter λ captures this cost of raising funds for MNCs; as for the cost of public funds, it could be rationalized as the shadow cost of a credit constraint or as the measure of investment distortion (e.g. missed opportunities) that result from engaging funds in an ISDS dispute. All qualitative results obtained in the previous subsection carry through when accounting for this cost of funds λ : the payoffs for the MNC become $q^c x_{jt} - (1 + \lambda)C_X$ for a high-stake case and $p^0 r_{jt} - (1 + \lambda)C_R$ for a regular case, and the MNC's expected surplus is equal to the maximum of these provided it is non-negative: $\max\{q^c x_{jt} - (1 + \lambda)C_X; p^0 r_{jt} - (1 + \lambda)C_R; 0\}$. Condition (2) is unchanged. Notice that it depends on \bar{k} , the expected number of high-stake cases filed in a period, which is a function of λ . Indeed, for a given level of the discount factor δ , the more likely collusion, i.e. the higher \bar{k} , the larger the acceptable size of the club of lawyers that support collusion.

Funders, however, being financial firms or investment funds, are supposed to have better access to financing: assume that their cost for raising funds is measured by some λ' , with $\lambda' < \lambda$, possibly negligible. When funders are able to propose TPF to a MNC, the terms of the agreement between them is that the funders pay the cost of the ISDS case in exchange for a share of the expected proceedings. The joint expected surplus has therefore the same expression as for the MNC only with a smaller cost of funds: it is then clearly higher than if the MNC were not using TPF. So, there trivially exists a sharing of the expected surplus that is acceptable by both the MNC and the funders, and TPF is actually used in equilibrium.

³²Indeed TPF agreements involve covering the legal cost in exchange for part of the actual gain but respondent state have nothing to gain - loss reduction is not a liquid asset.

³³See <https://monitormag.ca/articles/third-party-funding-of-investor-state-disputes-at-what-cost>. According to the international law firm Freshfields, funders are eager to "provide [the] much-needed ammunition to cash-strapped litigants, thereby fueling the waves of litigation."

Moreover, if $C_X > C_R$, a decrease in the cost of funds from λ to λ' leads to an increase in the high-stake case expected profits that is larger than the increase in the regular case expected profits. So, using TPF induces MNCs to file high-stake cases more often than in the absence of TPF. That is, \bar{k} is larger under TPF. So, we have immediately:

Proposition 3 : *Third Party Funding facilitates collusion. It allows for more MNC to file high-stake ISDS claims and a larger club of lawyers to benefit from collusive profits.*

Proposition 4 establishes that TPF allows for more claims to be filed and more as high-stake claims. Due to the presence of TPF, more States will face abusive arbitration attacks along with more attacks overall. The big winners are lawyers and MNC at the expense of taxpayers.

Several other factors have been pointed out by critics of TPF funding. In particular the fact that funders' interest affect investors' decision as implication not only for the filing decision as established earlier but also for the outcome of the proceedings when one considers the settlement option (which we do not consider in our model). Based on a search of UNCTAD's ISDS navigator, we found 34 cases (26 concluded and eight pending) where third-party funding was a factor in the proceedings or where the claimant voluntarily disclosed they were receiving external funding. Of the 26 concluded funded claims, only 4% resulted in settlements, compared to 20% across the 740 total concluded cases in the UNCTAD data set.

Finally, TPF can strengthen collusion yet through another channel. According to J. Kwame Sundaram ³⁴, "Financing firms provide clients with litigation packages from the outset, advising on what treaties to exploit and which law firms to hire, even recommending arbitrators". ³⁵ Financing firms have interest and better knowledge than MNCs to secure the highest chance for pro-business arbitration by relying on loyal (club) arbitrators.

6 Regulatory chill

In this section we use our model and results above to address the issue of regulatory chill that has been much discussed in the recent literature (Pelc, 2017, Stiglitz, 2017, Tienhaara, 2018). The notion of regulatory chill refers to the chilling impact of the mere existence of ISDS on states' regulatory policy-making. States refrain from welfare improving policies for fear of MNC attacking with ISDS. As Stiglitz puts it "...the clear intent of these trade agreements (that include ISDS) is to use Treaty Authority to limit the power of states and localities to regulate" (Stiglitz 2017). As an example, in 2017, the French government had a project to include a provision into the Hulot Law to ban exploration and new exploitation of fossil fuels in France by 2040. Canadian Vermillon informed the Conseil d'Etat that if

³⁴Jomo Kwame Sundaram was United Nations Assistant Secretary-General for Economic Development, and received the Wassily Leontief Prize for Advancing the Frontiers of Economic Thought in 2007.

³⁵<http://www.ipsnews.net/2017/04/dispute-settlement-becomes-speculative-financial-asset>

the law were to pass they would attack France with ISDS. Based upon a recommendation by the Conseil d'Etat, the French government finally decided to drop the provision.

To address this issue, we extend our model by introducing the State's policy decision explicitly at the beginning of each period. We are interested in whether and how the anticipation of MNC's filing an ISDS claim affects States' welfare improving regulatory decision. As before, we assume that regular cases concern legitimate compensation and by Proposition 1, ISDS then delivers fair justice in that context.

We shall first focus on pairwise i.e., one State - one MNC interactions. Next, we address the situation where the MNC faces similar ambitions to regulate in different states in which it operates.

6.1 Local regulatory chill

We amend the framework of subsection 5.1 as follows. As before there are m MNCs and h States and each MNC has assets or investments in each State. For any period t and MNC j , a four-dimensional random vector $(Z_{jt}, x_{jt}, r_{jt}, s_{jt})$ is drawn from a non-degenerate probability distribution. We let Z_{jt} now denote the social value associated with a regulatory decision that State s_{jt} can take in period t and that affects MNC j ' business in this State. At the beginning of period t , State s_{jt} decides whether to impose the regulation or not; if it does, then the game proceeds as in subsection 5.1, while if the regulation is not passed, no dispute occurs between MNC j and State s_{jt} . At the time the State makes its decision it does not know the values (x_{jt}, r_{jt}) of the compensation claims if MNC j initiates an ISDS procedure. The State thus makes its choice under incomplete information about the MNC's reaction to its decision.

In a one-period framework, we know from Proposition 1 that MNC j never files a high-stake case while it files a regular case if $p^0 r_{jt} \geq C_R$. Because it anticipates possible litigation in ISDS, the corresponding State decides to move forward with regulation iff.³⁶

$$Z_{jt} > \mathbb{E}[(D_R + p^0 r_{jt}) \mathbb{I}_{\{p^0 r_{jt} \geq C_R\}}], \quad (3)$$

that is, if the social value of the regulation exceeds the expected litigation costs. In the following, we define a policy as welfare improving when it satisfies (3). This means that the net social value of a regulatory policy should take into account the legitimacy of the claim made by the MNC for compensation and transaction costs attached to the process of acknowledging this legitimacy.

In a dynamic setting, however, MNC j files a high-stake case whenever (1) holds i.e. whenever $q^c x_{jt} - C_X \geq \max\{p^0 r_{jt} - C_R; 0\}$. And it files a regular case when (1) does not hold but $p^0 r_{jt} \geq C_R$. So, State s_{jt} moves forward with the regulation if:

$$Z_{jt} > \mathbb{E}[(D_X + q^c x_{jt}) \mathbb{I}_{\{(1)\}}] + \mathbb{E}[(D_R + p^0 r_{jt})(1 - \mathbb{I}_{\{(1)\}}) \mathbb{I}_{\{p^0 r_{jt} \geq C_R\}}]. \quad (4)$$

Comparing (3) and (4), we obtain:

³⁶In this and the next sub-section, we use the notation $\mathbb{I}_{\{A\}}$ for the indicator function that equals 1 if property A holds and 0 otherwise. Moreover, all probability distributions being assumed non-degenerate, we will only consider strict inequalities in the probabilistic expressions below, forgetting about zero-measure cases in which an exact equality holds.

Proposition 4 : *For fear of facing costly litigation in ISDS, states may refrain from implementing welfare improving regulations compared to the situation without pro-business collusion in arbitration when condition (2) holds.*

Proof. Condition (4) can be immediately restated as:

$$\begin{aligned} Z_{jt} &> \mathbb{E}[(D_X + q^c x_{jt})\mathbb{I}_{\{(1)\}}] + \mathbb{E}[(D_R + p^0 r_{jt})(1 - \mathbb{I}_{\{(1)\}})\mathbb{I}_{\{p^0 r_{jt} \geq C_R\}}] \\ &> \mathbb{E}[(D_R + p^0 r_{jt})\mathbb{I}_{\{p^0 r_{jt} \geq C_R\}}] + \mathbb{E}[(D_X + q^c x_{jt}) - \mathbb{I}_{\{p^0 r_{jt} \geq C_R\}}(D_R + p^0 r_{jt})]\mathbb{I}_{\{(1)\}}] \end{aligned} \quad (5)$$

The first term captures the legitimate expected compensation that enters the welfare value of the regulation and corresponds to (3) while the second term captures the expected excess compensation related to pro-business collusion in ISDS.

Analyzing this second term, with (1) satisfied, we notice that:

- if $p^0 r_{jt} \geq C_R$, the integrand equals:

$$(D_X + q^c x_{jt}) - (D_R + p^0 r_{jt}) \geq D_X - D_R + C_X - C_R \geq 0;$$

- and if $p^0 r_{jt} < C_R$, the integrand equals $D_X + q^c x_{jt}$, hence is strictly positive;

So, the overall expectation in the second term of (5) is strictly positive and condition (4) is therefore more demanding than (3). ■

Proposition 4 establishes that pro-business collusion in arbitration induces regulatory chill so that States refrain from welfare improving policy decisions for fear of MNCs' ISDS attacks. This result provides a theoretical foundation for critics' claims that ISDS represents a "power grab" (Stiglitz).

As a remark, notice that the condition for existence of a collusive equilibrium takes exactly the same form as in Subsection 5.1, but the definition of \bar{k} in this condition now takes into account the fact that the regulation decision that triggers a case is itself endogenous; the probability distribution of the random number of high-stake cases in period t , i.e. k_t , therefore depends on the joint distribution of the whole vector $(Z_{jt}, x_{jt}, r_{jt}, s_{jt})$ and on how often condition (4) is met.

It is easy to further extend the model to take into account the obvious fact that all states are not equal in face of the threat of ISDS. States pay arbitrators and compensations with public funds that are associated with a cost of public funds, including the cost of levying taxes and/or of borrowing money on the international market.³⁷ In their basic trade-off, States can then be viewed as comparing the social value of regulation, i.e. Z_{jt} , with the cost of ISDS in terms of public funds, i.e. $(1 + \mu)$ times the expected spending. The tighter the State's financial situation and the more inefficient its fiscal system, the larger the costs of public fund μ . This gives us the following straightforward Corollary:³⁸

³⁷For a standard use of the cost of public funds in the literature on public regulation, see Laffont-Tirole (1993).

³⁸Formalizing this argument is trivial and follows exactly the same route as when discussing the MNCs' cost of raising funds.

Corollary 1 : *The higher the cost of public funds, the larger the set of public regulation policies that ought to be implemented under fair justice but are deterred by collusion in the ISDS process when condition (2) holds.*

This Corollary establishes that more fragile States are more likely to bow to the MNCs' priorities, when these are weaponized with ISDS; the regulatory chilling impact of the threat of arbitration is larger the weaker the country. According to J. Kwame Sundaram, "Those investing in ISDS cases recognize that the most vulnerable governments for investors to sue are typically those already in some trouble. For example, when a country resorts to emergency economic measures to protect its citizens, investors can easily claim that these undermine earlier understandings of international agreements".³⁹

6.2 Cross-border Regulatory Chill

Above we have considered the situation where one State faces one MNC. It is actually immediate to generalize to a situation where a state's regulation decision in period t impacts several MNCs operating in its jurisdiction. First, the condition for the regulation to be welfare improving should account for the impact on all concerned MNCs. And most importantly, the regulatory chill effect reflects the sum of the threats from multiple MNCs. This kind of situation is likely to arise in the context of e.g., coal phase-out policies (cf. earlier mentioned case with Netherlands).

From an analytical point of view, a more interesting extension is to consider that MNC j operates in several countries that all have the ambition to enact similar regulation. After all, MNCs are by definition present in several states with similar activities. Moreover, the wave of ISDS cases in recent years strongly suggests that many cases are driven by similar regulatory decisions related to the newly established international awareness about the socially negative consequences of MNC's activities on health, climate change and biodiversity. Cross-border regulatory chill corresponds to the chill effect that one ISDS dispute with a given State might have on other states that are considering similar regulation policies.

A challenge, in terms of formalization, is to introduce correlation across States' regulation while maintaining the stationarity in the infinitely-repeated model that drives the simple analysis of collusion in subsection 5.1. Therefore, we below extend our basic model enriching the interaction within each period, but with a simplified specification in other respects.

In each period t and for each MNC j , a random vector is drawn consisting in:

- A_{jt} and B_{jt} , two States that are considering a similar regulation policy that could be adopted in both States and that impacts the MNC's activities in both States;
- Z_{jt} , the social value of the regulation in each of the two states, identical across both States;
- $\Delta\Pi_{jt}$, the value of avoiding regulation for the MNC in any of the two States, identical across both States;

³⁹<http://www.ipsnews.net/2017/04/dispute-settlement-becomes-speculative-financial-asset/>

- and (r_{jt}, x_{jt}) , the compensation claims in ISDS dispute, identical across both States.

To simplify, we will omit the time and MNC indices, and we study the following component game under incomplete information within each period:

1. the realization of $(A_{jt}, B_{jt}, Z_{jt}, \Delta\Pi_{jt}, r_{jt})$ becomes public knowledge, while only the MNC observes the value of x_{jt} ;
2. State A_{jt} decides whether or not to enact the regulation;
3. if State A_{jt} has enacted regulation, the MNC j decides whether to file a case and what type of case against State A_{jt} ;
4. observing which case has been filed against State A_{jt} if any, State B_{jt} decides whether or not to proceed with its own regulation;
5. the MNC j decides whether or not to file a case in ISDS against State B_{jt} if State B_{jt} has enacted regulation;
6. all disputes are settled by their arbitration tribunals, with corresponding payments of compensations and of procedural costs.

There are two main ingredients in our formalization. First, the parameters characterizing potential disputes are perfectly correlated across States. Second, States are uncertain about the ISDS consequences of enacting regulation i.e., the compensation requested by the MNC. We reduce the information advantage of MNC j to the common compensation claim in a high-stake case, x_{jt} , identical across States, assuming that all other parameters are common knowledge when regulation is decided.

The question we are interested in is how the correlation between both States affects their propensity to regulate. In particular we shall be interested in whether MNC j files more often a high-stake case against State A_{jt} in a collusive equilibrium rather than in a fair justice situation, and how this may lead State A_{jt} and State B_{jt} to refrain from enacting welfare improving policies compared to the fair justice situation.⁴⁰

To address these questions as simply as possible, we make several simplifying assumptions that we gather in the following:

Assumption A: i) $C_X = C_R \equiv C$; ii) for all (j, t) , $p^0 r_{jt} - C > 0$; iii) $Z - p^0 r - D_R > 0$; iv) $V_{jt} \equiv \Delta\Pi_{jt} - (p^0 r_{jt} - C) > 0$.

Assumption Ai) is innocuous and simplifies the algebra: the procedural cost incurred by the MNC does not depend on whether it files a regular case or a high-stake case. Aii)-iii)-iv) deserve more comments.

⁴⁰These cross-border regulatory chill effects imply that a global (i.e. potentially worldwide) welfare improving regulation may be held back by the MNC's gaming strategy in rising ISDS cases.

They impose restrictions on the probability distribution of the MNC's and State's benefits when the MNC avoids regulation and when it files a regular case against a State. Aii) secures that, when confronted with a new regulation, a MNC always finds it beneficial to raise an ISDS dispute since the expected benefits of a regular case are positive ($p^0 r_{jt} - C > 0$); of course the MNC might benefit even more from filing a high-stake case, but this depends on the realization of x_{jt} . This assumption enables us to concentrate on the form of the MNC's attack against a State, not on whether it does attack or not. Moreover, Aiii) assumes that the social value of regulation always exceeds the expected compensation payment plus procedural costs if the MNC files a regular case. This restriction boils down to ruling out cases in which no regulation takes place and therefore in which there is no role for ISDS. Aii) and Aiii) are simplifying assumption, to avoid analyzing too many uninteresting cases. More critically, Aiv) requires that a MNC always prefers to avoid regulation than to confront a regulating State with a regular ISDS case ($\Delta\Pi_{jt} > p^0 r_{jt} - C$). This net gain of avoiding regulation, denoted V_{jt} , gives any MNC an incentive to influence States' regulatory decision and to deter them from adopting a regulatory policy. This assumption can be justified by arguing that compensation claims in regular cases are determined by a fair evaluation of the costs of regulation for the MNC and for the society, and that fair justice should imply cost sharing and therefore only partial compensation for the MNC. More technically, this assumption determines a *single crossing property* in the game to be analyzed: a MNC will manipulate States' beliefs in order to deter regulation and *never to induce* regulation. We view this restriction as strongly supported by evidence, as argued before.

We now analyze the game described above under Assumption A, omitting indices for firm and time to simplify notation. Let us first look at the game in the absence of collusion, i.e. under fair justice. We know from Proposition 1 that raising a high-stake case is always a losing strategy for the MNC. The corporation only files regular cases against the States that adopt the regulation. By Aiii), States then always adopt the regulation in equilibrium.

We now reintroduce the possibility of collusion and therefore of filing high-stake cases. To develop the intuition, let us first consider the situation in which State *B* *does not* observe what has happened between State *A* and the MNC, i.e. with only local regulatory chill effects. So, both States are in a comparable situation when deciding to regulate: they each expect that the MNC will initiate a high-stake case if $q^c x - C > p^0 r - C$, that is if $x > \bar{x} \equiv \frac{p^0 r}{q^c}$, where \bar{x} denotes the minimal level of high-stake compensation that triggers a high-stake case in the local regulatory chill scenario. Each State will enact the regulation policy if:⁴¹

$$Z > (p^0 r + D_R)\mathbb{P}\{x < \bar{x}\} + \mathbb{E}[(q^c x + D_X)\mathbb{I}_{\{x > \bar{x}\}}],$$

that is if:

$$Z - p^0 r - D_R > \mathbb{E}[(q^c(x - \bar{x}) + D_X - D_R)\mathbb{I}_{\{x > \bar{x}\}}], \quad (6)$$

and otherwise will refrain from regulating, and the MNC's decision has no impact on the regulation decisions.

⁴¹Expectations and probabilities are evaluated here using the conditional probability distribution of x given $(A, B, Z, \Delta\Pi, r)$.

Let us finally turn to the case in which collusion can happen and State B observes the MNC's attack against State A . First note that whenever:

$$Z - p^0 r - D_R > \mathbb{E}[q^c(x - \bar{x}) + D_X - D_R \mid x > \bar{x}],$$

State B has such large benefits from regulation that it cannot be deterred from regulating even if it were persuaded that $x \geq \bar{x}$. In this case, there is no benefit for the MNC to deviate from the myopic behavior: that is, it will file a high-stake case if and only $x > \bar{x}$.

If, however, the reverse inequality holds (still neglecting equality cases with absolutely continuous probability distributions):

$$Z - p^0 r - D_R < \mathbb{E}[q^c(x - \bar{x}) + D_X - D_R \mid x > \bar{x}], \quad (7)$$

it means that if State B were persuaded that high-stake compensations are large (i.e. that $x > \bar{x}$), it would fear having to pay a large compensation in a high-stake case compared to the gains from regulation so that it would refrain from regulating. Then the MNC's decision facing State A can have an impact on State B 's decision to regulate.

When condition (7) holds, the equilibrium cannot be such that the MNC files a high-stake case against State A only when $x > \bar{x}$. For, when x is slightly below \bar{x} , the MNC could attack State A with a high-stake case, forsaking only a small profit ($q^c(\bar{x} - x)$) but inducing pessimistic beliefs from State B and therefore avoiding regulation in State B : this would be a profitable deviation since avoiding regulation is preferable than obtaining compensation, according to Assumption Aiv).

So we characterize a (Perfect Bayesian) equilibrium, parametrized by a (period-specific) threshold x^* with $0 \leq x^* < \bar{x}$, such that within each period in which condition (7) holds :

- if State A adopts the regulation, it is met with a high-stake case by the MNC if $x > x^*$ and a regular case otherwise;
- observing a high-stake case against State A , State B refrains from adopting the regulation (at least with some probability), while observing a regular case convinces State B that it will face only a regular claim and that it should regulate.

In this equilibrium, the MNC attacks more often with a high-stake case any first attempt to regulate by State A when its decision is observed by State B . At the threshold value $x = x^*$, the MNC is just indifferent between sacrificing a compensation equal to $p^0 r - q^c x^* = q^c(\bar{x} - x^*)$ against State A and securing the gain V from avoiding regulation from State B . So, $x^* = \bar{x} - V/q^c$, if $V \leq q^c \bar{x}$ and $x^* = 0$ otherwise. The condition for existence of such an equilibrium *in pure strategies* is that this threshold value cannot be too small i.e., State B must believe that the high-stake case compensation is large enough to refrain from regulating. More precisely, one must have:

$$Z - p^0 r - D_R < \mathbb{E}[(q^c(x - \bar{x}) + D_X - D_R)\mathbb{I}_{\{x > \bar{x}\}} \mid x > x^*].$$

If this condition is not met, regulation deterrence cannot be perfect; State B is only partially deterred from regulating, i.e. x^* is determined so that State B be indifferent between regulating or not after observing a high-stake case and it randomizes between both options. This is described more precisely in the Appendix.

From State A 's perspective, the MNC will attack with a high-stake case more often when its decision is observable by state B , but the additional attacks, for $x \in (x^*, \bar{x})$ involve an expected payment by State A that is smaller than $q^c \bar{x} = p^0 r$; this is beneficial for State A . On the other hand, the procedural costs of high-stake cases are larger than in regular cases so that these additional expected procedural costs may hurt State A . State A regulates whenever:

$$Z - p^0 r - D_R > \mathbb{E}[(q^c(x - \bar{x}) + D_X - D_R)\mathbb{I}\{x > x^*\}] \quad (8)$$

and refrains otherwise. This last condition must be compared to condition (6): the RHS in (8) is larger than the RHS in condition (6) when D_X is large enough relative to D_R ; and it may be smaller e.g. if $D_X = D_R$. When (8) is more demanding than condition (6) (e.g. $D_X \gg D_R$), cross-border effects induce State A to regulate less often than under purely local effects. By contrast, when (8) is less demanding than condition (6) (e.g. $D_X = D_R$), pioneer states like State A could be induced to be bolder in adopting a regulation with cross-borders effects than under purely local ones: a pioneer state expects to be attacked more often with high-stake cases, because the MNC wants to deter further states to regulate, but in these attacks the expected compensations are smaller than regular expected compensations ($q^c x^* < q^c \bar{x} = p^0 r$).

We summarize our findings in the following proposition that is formally proved in the Appendix.

Proposition 5 : *Under Assumption A, there exists an equilibrium with collusion in the repeated game that is characterized as follows for each period t and MNC j , provided condition (2) holds:*

- *when condition (7) does not hold, both States regulate and the MNC attacks with a high-stake case iff $x_{jt} > \bar{x}_{jt}$;*
- *when condition (7) holds, there exists a threshold x_{jt}^* with $0 \leq x_{jt}^* < \bar{x}_{jt}$ and a probability $\alpha_{jt}^* \in [0, 1)$ such that:*
 - *State A_{jt} regulates iff condition (8) holds and does not regulate otherwise;*
 - *MNC j files; a high-stake case against State A_{jt} after regulation whenever $x_{jt} > x_{jt}^*$ and a regular case otherwise;*
 - *after observing a regular case, State B_{jt} regulates with probability 1; after observing a high-stake case, State B_{jt} regulates with probability α_{jt}^* ; after observing no regulation from State A_{jt} , State B_{jt} regulates iff condition (6) holds;*

Proposition 5 establishes that the correlation between the two states induces an increase in the number of high-stake attacks initiated against State A , the first state to enact a given type of regulation. This

is because these attacks serve the MNC to prevent further regulation by the follower, State B . Indeed, whenever State B would adopt the regulation with only local effects (i.e. when condition (6) holds), it is induced to regulate less often under cross-border effects (since $\alpha_{jt}^* < 1$). On the other hand, when State B observes that the MNC has not attacked with a high stake claim state A after it enacted the regulation, this signals State B that x is small i.e. $x < x^*$, which may enable State B to regulate based on revised beliefs. Proposition 5 also shows that cross-border effects may be powerful enough to deter the pioneer state to regulate (State A); in that case, State B behaves as under purely local effects since it does not gather any information from the first stages of the game.

As a final remark, we notice, as we did after Proposition 4, that the condition of existence of collusion itself takes the same form as in our main proposition but here again k_t and \bar{k} are endogenous and depend critically on the whole probability distribution of $(A_{jt}, B_{jt}, Z_{jt}, \Delta\Pi_{jt}, r_{jt})$ and on the probability that each condition in Proposition 5 holds.

In this section, we have demonstrated how pro-business arbitration in ISDS changes governments' incentives to make decisions and infringes on sovereign nations' effective rights to carry out welfare improving policies. This represents an effective transfer of property rights from people and their representatives to the MNC, where MNC have in effect acquired the right to carry on with their activities under the status quo regulatory framework whatever the new circumstances. For any change however well-justified by public health social and environmental concerns, taxpayers must compensate them. ISDS effectively entails a true "power grab" (Stiglitz) .

7 Concluding remarks and discussion

In this paper we have demonstrated that Investment-State Dispute Settlement is an institution prone to pro-business collusion. The community of interest between lawyers acting as judges (arbitrators) and MNC has its major source in a basic asymmetry of ISDS: only MNC generate cases and they also choose the stake of their claim. The fact that arbitrators are nominated by the parties and that the crucial role for the outcome goes to the president chosen by both parties' arbitrators does not secure fairness because MNCs control the flow and the type of cases. The combination of for-profit arbitrators - as opposed to publicly employed judges with job security - and the feasibility of pro-business (biased) arbitration makes collusion between arbitrator and MNC a natural outcome of ISDS in a repeated interaction setting. In addition, recent developments including Third Party Funding increase the profitability for MNC to file, further strengthening incentives to collude and securing the profitability of international arbitration for a growing number of specialized lawyers.

We next turned to the impact of ISDS on state's sovereign power to pass welfare improving policies. We find that pro-business arbitration induces regulatory chill so states refrain from welfare improving policies for fear of ISDS. The effect is more pronounced for poorer state that have higher cost of public funds. We also consider cross state regulatory chill to find that it increases the incentives for MNC

to file high stake cases because the gain is not only the expected compensation but also the chilling effect on other states. As a consequence of cross chill effect, states' effective regulatory power is further constrained.

Our contribution has been to show that the collusive practice of ISDS is a natural outcome of ISDS procedural setup. And as a consequence, it has turned ISDS into a powerful instrument in the hand of MNCs to oppose any change in the regulatory environment of host countries. ISDS effectively shifted property rights over social, environmental and health protection from sovereign states to MNC. Supporters of ISDS have argued that ISDS protects investors while national courts take care of the other aspects of a conflicted situation. However, the collusive pro-business praxis of arbitration results in huge compensations that weight infinitely more than local courts decisions.

We believe that the issue of regulatory chill deserves more research in particular we have not considered the interaction between several MNC active with similar activities within a given country and in different countries. It would also be valuable to further investigate the impact of the new players entering the game through innovations like Third Party Funding and financialization. They have interests of their own that are expected to influence the behavior of MNCs and states and directly play in the development of the international arbitration business.

To conclude, our results put new light on the urgent need for deep structural reforms of international investor protection to put it in line with basic judicial standards as well as social economic efficiency.

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9 Appendix: Proof of Proposition 5

To simplify the expressions in the Appendix, we use the following notation: $\bar{Z} \equiv Z - p^0 r - D_R$, $H(x) \equiv q^c(x - \bar{x}) + D_X - D_R$. And we only consider strict inequalities in the expectation expressions as we assume absolutely continuous probability distributions and full support.

For completeness, consider first the case: $\bar{Z} < 0$. Each state will choose not to regulate if it expects to pay regular compensations and an even higher high-stake compensation. If the MNC only attacks a regulation decision (off-path) with a high-stake case whenever $x > \bar{x}$, State B should optimally choose not to regulate whatever takes place in the first stage as the expected compensation it expects to pay will be at least equal to $p^0 r$. Given this behavior by State B , there is no reason for the MNC to deviate in any way from this behavior. State A therefore refrains from regulating as it expects compensation that will be at least $p^0 r$ as well. Therefore, no state regulates and the MNC can use the same threshold \bar{x} for launching a high-stake case as in the purely local effects scenario.

Consider now the case: $\bar{Z} > \mathbb{E}[H(x) \mid x > \bar{x}]$, hence $\bar{Z} > 0$. If State B regulates whatever it observes, the MNC has no reason to use a threshold for high-stake attacks different from \bar{x} . In that case, State B 's (bayesian updated) beliefs after a regular attack are the truncation of the priors on $[0, \bar{x})$ and its beliefs after a high-stake attack are the truncation of the priors on $(\bar{x}, +\infty)$; so, State B can, as a sequentially rational choice, choose to regulate whether it observes a regular or a high-stake attack. State A faces the risk of a high-stake attack only when $x > \bar{x}$ and should also regulate since:

$$\bar{Z} > \mathbb{E}[H(x) \mid x > \bar{x}] > \mathbb{E}[H(x)\mathbb{I}\{x > \bar{x}\}],$$

which implies condition (6). So, both states regulate and the MNC can again use the same threshold \bar{x} for launching a high-stake case as in the purely local effects scenario.

Finally, we concentrate on the case: $0 < \bar{Z} < \mathbb{E}[H(x) \mid x > \bar{x}]$, where the second inequality corresponds to condition (7) in the text. We are looking for necessary conditions so that the MNC uses a threshold x^* , with $0 \leq x^* < \bar{x}$ to launch high-stake attacks against State A and State B decides to regulate with probability α^* after observing a high-stake attack (and with probability 1 after observing a regular attack). The characterization of the threshold x^* corresponds to the indifference between on the one hand, filing a regular case against State A which will induce regulation by State B since $\bar{Z} > 0$ and a second regular case against State B , and on the other hand, filing a high-stake case which will deter State B from regulating with probability $1 - \alpha^*$. So:

$$q^c x - C + (1 - \alpha^*)\Delta\Pi + \alpha^*(p^0 r - C) = p^0 r - C + p^0 r - C \Leftrightarrow x^* = \bar{x} - (1 - \alpha^*)\frac{V}{q^c}$$

if this is non-negative; otherwise, this means that the MNC always prefers to file a high-stake case whatever x , and then $x^* = 0$.

The other condition to be met is that State B finds it preferable to randomize after observing a high-stake attack, i.e. after getting information that $x > x^*$, if $\alpha^* > 0$, or finds it preferable not to regulate at

all if $\alpha^* = 0$. That is, if $\alpha^* = 0$,

$$\bar{Z} < \mathbb{E}[H(x)\mathbb{I}_{\{x>\bar{x}\}} \mid x > x^*],$$

and if $\alpha^* > 0$,

$$\bar{Z} = \mathbb{E}[H(x)\mathbb{I}_{\{x>\bar{x}\}} \mid x > x^*].$$

An equilibrium with $\alpha^* = 0$ exists then if and only if

$$\bar{Z} < \mathbb{E}[H(x)\mathbb{I}_{\{x>\bar{x}\}} \mid x > \sup\{\bar{x} - \frac{V}{q^c}; 0\}]. \quad (9)$$

If this condition is not met, $\bar{Z} > \mathbb{E}[H(x)\mathbb{I}_{\{x>\bar{x}\}} \mid x > \sup\{\bar{x} - \frac{V}{q^c}; 0\}]$; but since $\bar{Z} < \mathbb{E}[H(x) \mid x > \bar{x}]$, there must exist a level x^* with $\sup\{\bar{x} - \frac{V}{q^c}; 0\} < x^* < \bar{x}$ for which, by continuity, $\bar{Z} = \mathbb{E}[H(x)\mathbb{I}_{\{x>\bar{x}\}} \mid x > x^*]$. This corresponds to the condition above for existence of an equilibrium with $\alpha^* > 0$, and more precisely: $\alpha^* = \frac{V - q^c(\bar{x} - x^*)}{V}$.

This completes the characterization of the equilibrium after a regulation decision by State A . Finally, notice that State A 's decision to regulate is trivially driven by whether \bar{Z} is larger or smaller than $\mathbb{E}[H(x)\mathbb{I}_{\{x>x^*\}}]$, as asserted in the text.