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Abstract

This paper shows that Investor-State Dispute Settlements (ISDS) makes multinational firms more aggressive by increasing cost-reducing investments with the aim to enlarge the potential compensation an ISDS provision may offer. While a larger investment reduces the market distortion, it will also make potential compensations larger. Consequently, potential compensations to a foreign investor do not imply a zero-sum game. ISDS may decrease domestic welfare, in particular if the investment leads to the establishment of an export platform, and we find that even global welfare may decline.

JEL-Codes: F210, F230, F530, F550.

Keywords: investor-state dispute settlement, multinational enterprises, foreign direct investment, TTIP, TPP.

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1 Introduction

Foreign investors who undertake foreign direct investments (FDI) in a sovereign host country may suffer from a holdup problem. The reason is that a host country can use its sovereignty to appropriate part or all of the investment from the foreign investor. An Investor-State Dispute Settlement (ISDS) is intended to protect foreign investors against such opportunistic behavior and thus prevent the holdup problem. This behavior is often linked to weak institutions and unstable democratic processes in a country. However, ISDS provisions are to an increasing extent being considered for countries with both a stable political environment and strong institutional quality. For example, the Comprehensive Economic and Trade Agreement (CETA) between Canada and the EU includes an ISDS provision, which was also meant to be the case for both the Transatlantic Trade and Investment Partnership (TTIP) and the Trans-Pacific Partnership (TPP).¹ Furthermore, approximately 19% of all ISDS cases have occurred within the European Union, where legislation already offers strong protection for foreign investors.² Interestingly, on March 6, 2018, the EU Court of Justice has decided that ISDS clauses are not compatible with EU law.

This paper provides a formal economic framework for analyzing why multinational firms lobby for an ISDS provision in countries that are well-functioning. We show that an ISDS under monopoly increases a multinational firm's cost-reducing investments, leading to overinvestment, and ISDS also leads to higher expected profits due to the value of expected compensations. Furthermore, an ISDS under monopoly may have a detrimental effect on the host country's welfare if the multinational firm sells a large part of its host country production abroad. This is in particular the case for export platform FDI where

¹TTIP was negotiated between the US and the EU, and TPP includes several Pacific rim countries, among them the US, Canada, Australia and Japan, and was even meant to be ratified, but these agreements will not come into force as the Trump administration prefers bilateral over multilateral agreements. However, ISDS provisions are expected to be an integral part also of future agreements. In particular, TPP came into force without the US (but also without ISDS provision).

²UNCTAD has a detailed data base on ISDS cases. See <http://investmentpolicyhub.unctad.org/ISDS>.

most of the affiliate's output is sold in other countries than the host country.³ Adding local competition to the analysis shows that an ISDS provision may even exacerbate the overinvestment problem by increasing the incentives for cost-reducing investment while the effect on welfare remains ambiguous. All our results extend if the multinational firm invests in product quality or better market reception of its products rather than in cost-reducing technology.

Conflicts between multinational firms and host governments about the legality of policy changes have increased in recent years, and the cumulative number of known ISDS cases have risen from 51 in 2000 to 1,023 cases in 2020 based on UNCTAD data. Alongside the increase in arbitrated disputes,⁴ there is growing concern over the nature of arbitration claims by multinational firms against host states. One example is Philip Morris International's (PIM) attempt to sue the Australian government for billions of dollars over the introduction of plain packaging of cigarettes. After losing an initial battle in Australian courts, PIM initiated an ISDS claim in 2011 to reverse Australia's plain packaging laws, which ban all branding of cigarette packets. In 2015, a three-member arbitrate tribunal at the Permanent Court of Arbitration ruled that PIM had no jurisdiction to bring the case against Australia. This and similar cases have raised concerns over the democratic legitimacy of ISDS provisions (see von Bogdandy and Venzke, 2014), and have lead to a debate about national sovereignty in the presence of ISDS agreements. Frank and Wylie (2015) provide a survey of the literature of the darker sides of ISDS provisions. Some of the arguments they present are that ISDS courts are pro-investor biased, that they lack democratic legitimacy, and that their rulings are unpredictable.

Our analysis is related to a small but expanding literature on ISDS provisions and their effect on investment and welfare. Empirical findings are ambiguous on whether host countries of foreign direct investment (FDI) become more attractive through bilateral investment treaties and ISDS. Egger and Merlo (2012), for example, use data on German

³For example, Ito (2013) reports that the third country export ratio of US outward FDI ranges between 40 and 70% for small host countries.

⁴Several of these disputes concern the energy sector where multinational firms have made investments.

multinationals and find that bilateral investment treaties lead to an increase in the number of multinational firms that are active in a particular host country, and that they have a positive effect on the number of plants per firm, as well as on FDI stocks and fixed assets per firm. At the same time, Berger *et al* (2011), using three-year averages of FDI flows from 14 source countries to 83 (developing) host countries during the period 1978–2004, find that the impact of ISDS provisions on FDI is unclear.

Theoretical contributions offer various insights. Papers by Aisbett *et al* (2010a) and Aisbett *et al* (2010b) discuss efficient compensation rules for domestic and foreign firms, including removing some well-defined policies from any potential compensation claim.⁵ Kohler and Stähler (2019) show that an ISDS provision may improve aggregate welfare in the host country if the ISDS provision encourages entry. They also show, however, that an ISDS provision can never achieve the first best. Stähler (2020) finds that an efficient investor protection mechanism requires a multilateral framework provided by a supranational institution, and that any ISDS compensation from the government to the investor must be based on the host country’s benefits and not on reductions in investor profits, as is the normal practice. Horn and Tangerås (2016) show that specifying a threshold for a regulatory shock and a respective compensation rule that depends on this threshold can implement an optimal investment agreement. Janeba (2019) deals with the effect of ISDS on regulatory chill, and he finds that this effect is ambiguous. Perhaps closest to our study is Konrad (2017). He studies ISDS in markets with large investors and argues that ‘ideal’ ISDS provisions have both positive and negative effects. They can establish a level playing field between domestic and foreign investors, but they can also magnify a strategic overinvestment problem and thus lead to excessively permissive regulation.⁶

Our model sets itself apart from the literature by focusing on a national policy that is evidence-based rather than opportunistic. While Konrad (2017) scrutinizes an *ex post*

⁵This literature is also related to papers on land takings; for the seminal paper, see Blume *et al* (1984).

⁶A government that loses an ISDS case must reverse its policy and pay compensations. Fear of losing such cases may make a government reluctant to implement legislation, often referred to as regulatory chill. Janeba (2019) shows that regulatory chill does not only occur under biased courts but may affect national courts as well.

efficient ISDS provision in an environment where governments may be opportunistic, we consider an environment in which institutions are strong, but the ISDS provision may nevertheless lead to compensation of an investor if the panel finds that policy has caused “unjustified” harm.⁷ In our model, an ISDS agreement will always entail some positive probability of ruling in favor of the investor irrespective of the existence of evidence-based policies.

We exemplify the effects of ISDS by discussing a tax that aims to correct a negative externality. Our analysis considers an ISDS agreement that is embedded into an environment of evidence-based regulatory policy equivalent to Pigouvian taxation. The tax is set to correct for an externality whose size is known to all parties in period 1, but *ex ante* unknown and stochastic for period 2. The government can commit to well-defined rules, and this commitment can prevent *ex post* opportunistic behavior. Thus, it seems that ISDS does not play any role in this environment. However, given that ISDS was intended to be a cornerstone in both the TTIP and the TPP agreement, we discuss its role for multinational behavior in the environment of a host country featuring strong institutions.

We employ a two-period model in which the multinational firm sets up a subsidiary in the host country in the first period. In the second period, the multinational can make a case and bring the issue to an ISDS panel if the subsidiary’s profits fall short of its previous period level due to a tax change. In our model, the multinational has market power and thus produces too little. The ISDS provision will affect firm behavior and should lead to more production in both periods. However, we show that the combination of taxation and ISDS leads to over-investment and ambiguous welfare effects under different scenarios because the potential compensation will be larger with an increase in output.

In our model, the government acts fact-based, but the ISDS panel – made up of in-

⁷For example, Article 9.8 of the TPP draft (2016) specifies that “[n]o Party shall expropriate or nationalize a covered investment either directly or indirectly through measures equivalent to expropriation or nationalization (expropriation) except: (a) for a public purpose; (b) in a non-discriminatory manner; (c) on payment of prompt, adequate and effective compensation . . . ; and (d) in accordance with due process of law.” Any profit reduction could be regarded as a measure equivalent to expropriation in this context. In fact, this is just what Phillip Morris claimed in their case against the Australian government.

ternational lawyers – may interpret the issue differently than the government. Herein lies the uncertainty and worry among many about the lack of democratic legitimacy. Our set-up can be seen as one in which the firm rather than the government is opportunistic by testing the panel’s interpretation of the ISDS agreement. Our model uses a tax as the modeling tool, but our findings would carry over to other policy measures as long as profits are harmed.⁸

The remainder of the paper is organized as follows. Section 2 outlines the model, and section 3 studies the effects of ISDS under monopoly. Section 4 adds a local competitor to the analysis and section 5 concludes.

2 The basic model

We consider a two-period model in which the multinational firm enters and starts production in the first period after the host government has set a tax to correct for negative externalities. Before the multinational firm starts production, it has to make an entry investment that will determine its productivity in future periods. Let $k(x)$ with $k(0) > 0, k'(\cdot) > 0, k''(\cdot) \geq 0$ denote the entry cost where x is the size of the productivity-enhancing investment. In particular, the size of x will determine the marginal production cost $c(x), c'(\cdot) < 0, c''(\cdot) > 0$. Thus, the entry decision of the multinational firm has two dimensions: stay out or enter. If it enters, but does not invest in productivity, investment cost is $k(0)$, whereas if it invests in productivity, the cost of productivity enhancing investment is $k(x) - k(0)$. In what follows, we will focus on entry, and we thus endogenize the investment size but not the number of entrants. Note carefully that, for convenience, we make the assumption of a productivity-enhancing investment; all our results do also hold if the multinational firm invests in product quality or in better market reception for its products.

⁸In this sense our model resembles the case referred to above about Phillip Morris suing the Australian government over the introduction of plain packaging of cigarettes. The fact that Phillip Morris tested the waters with this case shows that they expected a non-zero win probability.

Ex ante, the intervention necessity to correct for the externality is unknown for the second period. The externality is linearly related to production and denoted by θ . Its size is known to both the investor and the host government in the first period and equal to θ_1 . The second period realization is *ex ante* unknown and thus stochastic. Both the multinational firm and the government know that θ will be drawn from a distribution whose cdf is given by $F(\theta)$ such that $F(\underline{\theta}) = 0$, $F(\bar{\theta}) = 1$, $0 < \underline{\theta} < \theta_1 < \bar{\theta} < \infty$, and the pdf $f(\theta) = F'(\theta)$ exists for all $\theta \in [\underline{\theta}, \bar{\theta}]$.

The multinational firm produces in this country to serve a specific market. Demand conditions do not change over time and can be given by the inverse demand function $p(Q)$ with $p'(Q) < 0$ in the relevant range. In the basic model, where y denotes the multinational firm output, the multinational firm is a monopolist such that $y = Q$ holds. The operating profit in each period is given by

$$\pi = p(y)y - c(x)y - ty, \quad (1)$$

where t denotes a unit tax (and where we have suppressed subscripts denoting the period). In each period, the subsidiary maximizes operating profit w.r.t. output y , leading to the first-order condition⁹

$$\pi_y = p(y^*(t, x)) - (c(x) + t) + p_y(y^*(t, x))y^*(t, x) = 0. \quad (2)$$

In order to save on notation, we will use $y^* = y^*(t, x)$ or $y_1^* = y^*(t_1, x)$ and $y_2^* = y^*(t_2, x)$, respectively, when considering different periods. The second-order condition warrants $\pi_{yy} = 2p'(\cdot) + p''(\cdot)y^* < 0$. Since $\pi_{yt} = -1$ and $\pi_{yx} = -c'(\cdot) > 0$, we find that $y_t^* < 0$ and $y_x^* > 0$, as expected. Let $\pi^* = (p(y^*) - (c(x) + t))y^*$ denote the maximized profit of the multinational firm. Due to the Envelope theorem, we have

⁹We assume an interior solution such that the tax will not be too large, that is, $t < p(\cdot) - c(\cdot)$, but our model could also accommodate prohibitive taxation leading to multinational inactivity, that is, $y^* = 0$.

$$\begin{aligned}\pi_x^* &= \pi_x = -c'(\cdot)y^* > 0, \\ \pi_t^* &= \pi_t = -y^* < 0\end{aligned}\tag{3}$$

showing that operating profits increase with the productivity-enhancing investment and decrease with the tax. Aggregate domestic welfare is denoted $W = W_1 + \delta W_2$, where $\delta, 0 < \delta \leq 1$, is the discount factor:

$$\begin{aligned}W_1(\cdot) &= \alpha \left[\int_0^{y_1^*} p(\xi)d\xi - p(y_1^*)y_1^* \right] + (t_1 - \theta_1)y_1^*, \\ W_2(\cdot) &= \alpha \left[\int_0^{y_2^*} p(\xi)d\xi - p(y_2^*)y_2^* \right] + (t_2 - \theta_2)y_1^* - Iq(\pi_1^* - \pi_2^*).\end{aligned}\tag{4}$$

Domestic welfare consists of three components: (i) consumer surplus, (ii) tax revenues corrected by the effect of the externality, and (iii) the potential ISDS compensation to be paid to the multinational firm, which materializes only in the second period. We let I denote an indicator variable that is equal to zero if the tax rate is below its past level and equal to one if it exceeds its previous level.¹⁰ Consumer surplus depends on whether the relevant market of the multinational firm is outside the host country or not. In the first case, $\alpha = 0$; if the multinational firm produces for the host country only, $\alpha = 1$. Assuming homogeneous consumers across countries, $0 < \alpha < 1$ if the multinational firm produces for an internationally integrated market, and α will measure the relative size of the host country compared to the size of the international market.¹¹

An innovation here is the role of potential compensations: If the subsidiary's opera-

¹⁰If filing for ISDS has a legal cost for the investor, some range of potential inaction will result because the expected compensation must be larger than the legal cost. We ignore this effect, as our results do not change for the range of taxes for which the panel will become active. Janeba (2019) explicitly includes legal costs.

¹¹An alternative explanation for $0 < \alpha < 1$ is that the host government is less interested in consumer surplus than in other welfare components.

tion profit in period 2 falls short of its level in the previous period, denoted by π_1^* , the multinational firm can make a case and take it to an ISDS panel. This panel will rule in favor of the multinational firm with probability q such that the expected compensation is equal to $q(\pi_1^* - \pi_2^*)$. Since most ISDS provisions are not clear on how panels should decide, except for the notion of equivalence to expropriation for which any kind of profit reduction can qualify, we choose the simplest setup of a completely stochastic outcome, as in Janeba (2019). Alternatively, we could make q dependent on θ_2 such that $q = \rho\mu(\theta_2)$ where $\rho\mu(\theta_2) \in [0, 1[$. Then ρ is the degree of investor-friendliness, like in Janeba (2019), and $\mu(\theta_2)$ with $\mu'(\cdot) \leq 0$ measures the extent to which the panel is influenced by evidence. In what follows, our results do not change qualitatively if we do the comparative static exercises w.r.t. ρ instead of q . Note carefully that our ISDS provision does not ensure unchanged profits for the investor since there is a probability $(1 - q)$ that the investor will not receive any compensation.

In order to determine how the tax is set, we have to distinguish between institutionally weak and institutionally strong countries. In the case of an institutionally weak country, the host government is not able to commit to well-defined regulatory rules, but may set the tax at its discretion. Appendix A.1 discusses the incentives of an opportunistic government. However, the Comprehensive Economic and Trade Agreement (CETA) involves partner countries that do not tend to suffer from institutional weaknesses and political uncertainty, and this is also true for the majority of countries that would have been involved in the Transatlantic Trade and Investment Partnership (TTIP) or in the Trans-Pacific Partnership (TPP). In these agreements, compensation is based on violation of certain identified conditions. An ISDS agreement is similar in structure, but must clarify the foundation of an evidence-based regulatory policy. First, we would expect it to be independent of market conduct and firm characteristics. Second, it should follow scientific evidence for the problem at hand. In our case, this is equivalent to Pigouvian taxation, that is, $t^*(\theta) = \theta$. In this case, only the externality is taken into account, and any activity that is causing this externality would be treated in the same way. We would expect that an evidence-based policy would solve the holdup problem as regulation would follow strict

rules that exclude opportunistic behavior. However, the recent design of ISDS provisions provides an opportunity for firms to claim for compensation. The next section will show that multinational firms may also benefit indirectly as the potential compensation allows them to strategically increase their investment level.

3 The effect of ISDS

We will now scrutinize the investment behavior of the multinational firm and the implications of ISDS for firm behavior and for domestic welfare. The government follows an evidence-based policy so that $t = \theta$ in both periods. Importantly, any evidence-based policy is stacking the decks in favor of ISDS: the government faces two distortions, an externality and a distortion due to imperfect competition. The evidence-based policy would maximize social welfare if there was no distortion in the product market. Thus, if ISDS increases output, it will help reduce the market distortion, and by assumption we rule out that a potentially more effective policy instrument may deal with this distortion. Thus, our evidence-based policy focuses on one policy issue only.

With an evidence-based policy, the expected profit of the firm is given by

$$\begin{aligned}
\Omega &= \pi^*(\theta_1, x) + \delta \int_{\underline{\theta}}^{\bar{\theta}} \pi^*(\theta, x) dF(\theta) + \delta q \int_{\theta_1}^{\bar{\theta}} [\pi^*(\theta_1, x) - \pi^*(\theta, x)] dF(\theta) - k(x) \quad (5) \\
&= [1 + \delta q(1 - F(\theta_1))] \pi^*(\theta_1, x) + \delta \left(\int_{\underline{\theta}}^{\theta_1} \pi^*(\theta, x) dF(\theta) + (1 - q) \int_{\theta_1}^{\bar{\theta}} \pi^*(\theta, x) dF(\theta) \right) \\
&\quad - k(x).
\end{aligned}$$

Expression (5) takes into account the fact that the investment is effective over two periods; δ denotes the same discount factor as in the welfare function. Without ISDS, that is, $q = 0$, the multinational firm's profit will be equal to the first period operating profit and the discounted expected second period operating profit, minus the investment cost. If regulation is tightened, that is, if $\theta_2 > \theta_1$, ISDS gives the multinational firm the chance to

receive a compensation. The second line of (5) shows that this works like a partial insurance to secure the first period operating profit also in the second period. The multinational firm will correctly anticipate these effects when determining its optimal investment level. The first-order condition for x is given by

$$\begin{aligned} \Omega_x &= [1 + \delta q(1 - F(\theta_1))] \pi_x^*(\theta_1, x^*) - k_x(x^*) \\ &+ \delta \left(\int_{\underline{\theta}}^{\theta_1} \pi_x^*(\theta, x^*) dF(\theta) + (1 - q) \int_{\theta_1}^{\bar{\theta}} \pi_x^*(\theta, x^*) dF(\theta) \right) = 0. \end{aligned} \quad (6)$$

We are now able to develop our first main results that is summarized by:

Proposition 1. *ISDS will increase both (i) the expected multinational firm profit and (ii) the productivity-enhancing investment.*

Proof. See Appendix A.2. □

We conclude that the benefits of ISDS for the multinational firm come from two sources, the direct effect of a potential compensation, and an indirect effect through investment that enhances the direct effect. ISDS leads to strategic over-investment: for $q = 0$, the multinational firm, being a monopolist, would just balance the marginal benefit of the production cost reduction and the marginal cost of cost-reducing investment. With an increase in q , investment increases beyond cost minimization because the size of the investment also determines the potential compensation.

What about the effect of an ISDS provision on domestic welfare and global welfare? We find:

Proposition 2. *The effect of ISDS on domestic and global welfare is ambiguous. The effect on domestic welfare is negative for a sufficiently small α , and the effect on global welfare is unambiguously positive only for a small q .*

Proof. See Appendix A.3 □

Recall that α measures the relative size of the host country compared to the size of the international market. If $\alpha = 0$, the multinational firm sells its host country production outside the host country. Proposition 2 shows that not only is the welfare effect negative for $\alpha = 0$, but small values of α may also lead to a reduction in welfare because the increase in consumer surplus over the two periods may not be large enough to compensate the expected compensation from an ISDS provision. The reason for the ambiguity in welfare is that in period 1 the multinational overinvests due to the ISDS provision, which has a positive welfare effect. However, in the second period the government may have to pay a compensation. Since the firm has overinvested due to the ISDS provision, the size of the compensation due to the overinvestment may result in lower domestic welfare.

What could be hoped for is a bilateral (or even multilateral) agreement in the sense that a domestic investor in the foreign country would enjoy the same treatment. However, this requires that bilateral FDI is balanced (to make each country better off) and that multinationals mainly serve markets within the area of the agreement (as to increase the aggregate α). Even if these conditions were fulfilled, it is not clear that global welfare would increase because the investment distortion could be so large that it would overcompensate the increase in global consumer welfare. Only if the ISDS provision is small, that is, if q is small, global welfare might increase with ISDS as it corrects the market distortion. However, the question is, why use an ISDS provision to correct for market failures, and not a potentially more effective instrument?

4 Competition with a domestic firm

Now suppose that the multinational firm is not a monopolist in its new host country but faces competition by a local firm. Both firms compete in the same market and face an inverse demand function $p(y+z)$ where y denotes the multinational output as before and z is the output of the domestic firm. The empirical literature has shown that multinational firms are larger and more productive than domestic firms (see for example Helpman *et al*, 2004, and Raff *et al*, 2012), and we therefore assume that the marginal production cost

of the domestic firm is fixed and equal to γ such that $\gamma > c(0)$. The multinational profit, net of investment cost, is given by $\pi^y = (p(y+z) - c(x) - t)y$, and the domestic profit is given by $\pi^z = (p(y+z) - \gamma - t)z$. Note here that we assume strict national treatment rules so that the government cannot tax the domestic firm more favorably. This is in line with practice in countries with strong institutions such as the wider European Economic Area. The first-order conditions for both periods are given by

$$p(y^{**}(t, x) + z^{**}(t, x)) - c(x) - t + p'(y^{**}(t, x) + z^{**}(t, x))y^{**}(t, x) = 0, \quad (7)$$

$$p(y^{**}(t, x) + z^{**}(t, x)) - \gamma - t + p'(y^{**}(t, x) + z^{**}(t, x))z^{**}(t, x) = 0, \quad (8)$$

where $y^{**}(t, x)$ and $z^{**}(t, x)$ denote the optimal production levels of the multinational and the domestic firm, respectively. As before, we save on notation by $y^{**} = y^{**}(t, x)$, $z^{**} = z^{**}(t, x)$ and introduce time subscripts only if necessary. Let $\pi^{y^{**}}$ and $\pi^{z^{**}}$ denote the maximized profit of the multinational and the domestic firm, respectively. We find that our results are similar as in the case of a monopolistic multinational firm, with $\pi_x^{y^{**}}$ replacing π_x^* , such that Proposition 1 holds also for the duopoly case:

Lemma 1. $\pi_x^{y^{**}} > 0, \pi_{xt}^{y^{**}} < 0$.

Proof. See Appendix A.4. □

However, in the case of duopoly, a crucial difference is that the investment level is already larger than the cost-minimizing investment without ISDS ($q = 0$). Since domestic output decreases with cost-reducing multinational investment, the multinational firm can gain market share and profit by strategic over-investment. While this effect is well known from the strategic trade policy literature, we show here that this effect is exacerbated by ISDS: an ISDS provision makes this investment even more strategic in nature and thus even larger.

Note carefully that this result does not say anything about investment *levels* under monopoly versus duopoly: investment is not strategically larger if it only balances the

marginal benefit of cost reduction and the marginal cost of investment. When the multinational firm is a duopolist, the benefit of a cost reduction is smaller compared to the case of a monopolist. Thus, another interesting question is whether a multinational firm's investment level will be smaller or larger when it faces a domestic rival. We observe two opposing effects: (i) Due to competition, multinational output and profit are smaller with a domestic rival, and this effect makes cost-reducing investment less profitable and smaller. (ii) In a duopoly, the multinational firm is able to take market share away from a domestic rival by increasing its cost-reducing investment. We find:

Proposition 3. *If inverse demand is linear, that is, $p = a - b(y + z)$, the cost-reducing investment is larger under duopoly if*

$$\gamma \geq \frac{a + 7c(0) - \bar{\theta}}{8}.$$

Proof. See Appendix A.6. □

Note that Proposition 3 develops only a sufficient condition; it may well be that the cost-reducing investment is larger with a domestic rival even if γ is sufficiently large only for some range of θ . In that case, the result will also depend on the cdf $F(\theta)$. In any case, we observe that the condition is not too demanding, given that the empirical literature emphasizes the strong productivity differences between domestic and multinational firms.

In the presence of a domestic rival, aggregate domestic welfare $W = W_1 + \delta W_2$ is now given by

$$\begin{aligned} W_1(\cdot) &= \alpha \left[\int_0^{y_1^* + z_1^*} p(\xi) d\xi - p(y_1^* + z_1^*)(y_1^* + z_1^*) \right] + \pi_1^{z^{**}} + (t_1 - \theta_1)(y_1^* + z_1^*), \quad (9) \\ W_2(\cdot) &= \alpha \left[\int_0^{y_2^* + z_2^*} p(\xi) d\xi - p(y_2^* + z_2^*)(y_2^* + z_2^*) \right] + \pi_2^{z^{**}} + (t_2 - \theta_2)(y_2^* + z_2^*) \\ &\quad - Iq(\pi_1^* - \pi_2^*), \end{aligned}$$

where the difference from (4) is that the domestic firm profit is taken into account. Ap-

pendix A.5 shows that Proposition 2 carries over qualitatively to the duopoly case: the ISDS-induced increase in investment will raise domestic consumer surplus in both periods, but will also erode domestic profits in both periods, and it may lead to a larger compensation claim. The effect of ISDS on domestic welfare, therefore, is ambiguous also in the presence of a local competitor.

An important feature of ISDS provisions is that they allow only foreign investors to sue a host government and claim for compensation; a domestic investor does not have this right. In our context, the domestic firm will thus not be able to enjoy any compensation. An interesting question is what happens if we allow the domestic firm to increase its productivity through an investment as well. As ISDS is a privilege only for the foreign investor, the outcome can be even worse for the domestic country. As shown above, ISDS makes the foreign investor more aggressive in terms of its cost-reducing investment. In our setup, investment levels are most likely to be strategic substitutes, that is, if foreign investment goes up, domestic investment is likely to go down, as the residual market for the domestic firm becomes smaller with a more aggressive foreign rival.¹² If also the domestic firm can influence its own productivity, ISDS will make the foreign firm not only capture a larger market share, but also reduce the investment incentive of a domestic investor.

5 Concluding remarks

This paper has studied ISDS provisions in the context of host countries with a strong institutional environment. The production activity gives rise to an externality that is internalized by Pigouvian taxation. A multinational firm can invest in cost-reducing technology in a host country and pays a unit tax. Why then do multinational firms have an interest in an ISDS provision? First, ISDS may imply a compensation payment if the tax

¹²This can be easily seen by using the assumptions of Proposition 3 that lead to maximized profits $\pi_i(x_i, x_j) = (a - 2c_i(x_i) + c_j(x_j))/9b - k_i(x_i)$ where the subscripts denote firm i or j respectively. Since $\partial^2 \pi_i(x_i, x_j) / \partial x_i \partial x_j = -2c'_i(x_i)c'_j(x_j)/9b < 0$, ISDS will crowd-out domestic investment.

rate rises. If the subsidiary's profits fall short of its previous period level, the multinational firm can make a case and bring the issue to an ISDS panel. A second effect is that the ISDS provision makes the multinational firm more aggressive in the market place. We have shown that an ISDS provision leads to over-investment under both monopoly and duopoly and that the welfare effects of ISDS provisions are ambiguous. Competition can even lead to more strategic over-investment as the multinational firm has an additional incentive to take market share away from a local rival. If the investment establishes an export platform such that the benefits from an increased multinational output are small relative to the potential compensation and a potential reduction in domestic firm profit, the domestic country may be worse off.

Already in October 2014, the Economist wrote: "If you wanted to convince the public that international trade agreements are a way to let multinational companies get rich at the expense of ordinary people, this is what you would do: give foreign firms a special right to apply to a secretive tribunal of highly paid corporate lawyers for compensation whenever a government passes a law to, say, discourage smoking, protect the environment or prevent a nuclear catastrophe (The Economist, Investor-state dispute settlement. The arbitration game, Oct 11th 2014)." Our model has shown why multinational firms have an interest in ISDS provisions beyond the expected potential compensation, as ISDS allows them to change the market game in their favor. We conclude that the public should be wary of any agreement which includes ISDS provisions in countries with strong institutions, in particular if most of FDI serves as an export platform investment.

Appendix

A.1 Opportunistic government

Not being able to commit to pre-defined regulatory rules allows the government to set the tax in response to firm- and market-specific circumstances. The first-order condition allows us to identify several tax incentives:

$$W_t(\cdot) = \underbrace{-\alpha p'(y^*)y_t^*}_{\text{I}} + \underbrace{y^*}_{\text{II}} + \underbrace{(t - \theta)y_t^*}_{\text{III}} + \underbrace{Iq\pi_t^*}_{\text{IV}} = 0. \quad (\text{A.1})$$

The non-cooperative tax balances several incentives: first, the tax wants to correct for the monopolistic distortion in the consumer market (see I), second, it shifts profits from the multinational firm to the host country (see II), third, it aims to correct the externality (see III) and, finally, taxation takes into account that an increase in the tax rate may lead to a potentially successful compensation claim by the multinational firm. These effects, except for ISDS effect IV, are well-known in the literature and may lead to a regulatory chill (see Janeba, 2019).¹³

The government sets a high or low tax depending on the relative strength these effects. If the profit-shifting incentive (II) is strong, the holdup problem materializes: the government cannot commit to an evidence-based policy, and the multinational firm will anticipate this behavior and may not invest in the first place, leading to the classic holdup problem.¹⁴ If the government cannot commit to pre-defined rules of regulation, Kohler and Stähler (2016) have shown that an ISDS provision may increase aggregate welfare under certain conditions. This can be seen from $W_{tq} = I\pi_t^* < 0$: introducing ISDS, that is, changing from $q = 0$ to $q > 0$, or tightening ISDS, that is, increasing q , will reduce the tax rate. If the tax rate has been excessively high from a social perspective, an ISDS provision may work as a disciplinary device to mitigate the holdup problem.

A.2 Proof of Proposition 1

Due to the envelope theorem, $d\Omega/dq = \Omega_q$, and differentiation yields

$$\Omega_q = \delta \left((1 - F(\theta_1))\pi^*(\theta_1, x^*) - \int_{\theta_1}^{\bar{\theta}} \pi^*(\theta, x^*)dF(\theta) \right) > 0, \quad (\text{A.2})$$

because $\pi_t^* = \pi_\theta^* < 0$, and thus π^* is strictly decreasing in θ , making the second term in (A.2) smaller than the first term. Further differentiation yields

$$\Omega_{xq} = \delta \left((1 - F(\theta_1))\pi_x^*(\theta_1, x^*) - \int_{\theta_1}^{\bar{\theta}} \pi_x^*(\theta, x^*)dF(\theta) \right) > 0, \quad (\text{A.3})$$

because

¹³The incentives to tax or subsidize a foreign monopolist have been discussed extensively in the strategic trade policy literature; for an overview, see Brander (1995).

¹⁴For the seminal papers dealing with the holdup problem in taxation, see Bond and Samuelson (1986) and Doyle and van Wijnbergen (1994).

$$\pi_{xt}^*(\cdot) = \pi_{yx}(\cdot)y_t^* + \pi_{xt}(\cdot) = -c_x(\cdot)y_t^*(\cdot) - y_x^*(\cdot) < 0, \quad (\text{A.4})$$

so π_x^* is strictly decreasing in θ , making the second term in (A.3) smaller than the first term.

A.3 Proof of Proposition 2

Ex ante, the realization of θ_2 is unknown, and thus we have to consider aggregate domestic welfare $W = W_1 + \delta\hat{W}_2$ where W_1 is defined by (4) and \hat{W}_2 follows from (4) such that

$$\hat{W}_2 = \alpha \int_{\underline{\theta}}^{\bar{\theta}} \left[\int_0^{y_2^*(\theta)} p(\xi)d\xi - p(y_2^*(\theta))y_2^*(\theta) \right] dF(\theta) - q \int_{\theta_1}^{\bar{\theta}} [\pi_1^*(\theta_1) - \pi_2^*(y_2^*(\theta))] dF(\theta)$$

because $t_2 = \theta_2$. W.r.t. to the direct effect of ISDS, we find that $\hat{W}_{2q} = -\Omega_q < 0$. W.r.t. investment, differentiation yields

$$\begin{aligned} \frac{dW(\cdot)}{dq} &= W_{1x}x_q + \delta \left[\hat{W}_{2x}x_q - \Omega_q \right] \quad \text{where} & (\text{A.5}) \\ W_{1x}(\cdot) &= -\alpha p'(y_1^*(\theta_1))y_{1x}^*(\theta_1) > 0, \\ W_{2x}(\cdot) &= -\alpha \int_{\underline{\theta}}^{\bar{\theta}} \left[\int_0^{y_2^*(\theta)} p'(y_2^*(\theta))y_{2x}^*(\theta)dF(\theta) \right] - q \int_{\theta_1}^{\bar{\theta}} [\pi_{1x}^*(\theta_1) - \pi_{2x}^*(\theta)] dF(\theta). \end{aligned}$$

Since $\pi_{xt}^*(\cdot) = \pi_{x\theta}^*(\cdot) < 0$ (see (A.4))

$$\int_{\theta_1}^{\bar{\theta}} [\pi_{1x}^*(\theta_1) - \pi_{2x}^*(\theta)] dF(\theta) = [1 - F(\theta_1)] \pi_{1x}^*(\theta_1) - \int_{\theta_1}^{\bar{\theta}} \pi_{2x}^*(\theta)dF(\theta) > 0,$$

and thus $W_{2x}(\cdot)$ and therefore also dW/dq are ambiguous in sign. For a sufficiently small α , $dW/dq < 0$. Let $V = W(\alpha = 1) + \Omega$ denote global (world) welfare, that is, the sum of consumer surplus across all countries and MNE profit, for which

$$\begin{aligned} \frac{dV}{dq} &= -p'(y_1^*)y_{1x}^* - \delta \int_{\underline{\theta}}^{\bar{\theta}} \left[\int_0^{y_2^*(\theta)} p'(y_2^*(\theta))y_{2x}^*(\theta)dF(\theta) \right] & (\text{A.6}) \\ &\quad - \delta q \left([1 - F(\theta_1)] \pi_{1x}^*(\theta_1) - \int_{\theta_1}^{\bar{\theta}} \pi_{2x}^*(\theta)dF(\theta) \right) \end{aligned}$$

which is also ambiguous in sign and clearly positive only for a small q .

A.4 Proof of Lemma 1

Differentiation yields

$$\pi_{yy}^y = 2p'(\cdot) + p''(\cdot)y < 0, \pi_{zz}^z = 2p'(\cdot) + p''(\cdot)z < 0,$$

$$\pi_{yz}^y = p'(\cdot) + p''(\cdot)y < 0, \pi_{zy}^z = p'(\cdot) + p''(\cdot)z < 0,$$

where the sign of the last two derivatives assumes that both firms compete with strategic substitutes. The (strictly positive) Jacobian is given by

$$\det(J) = \pi_{yy}^y \pi_{zz}^z - \pi_{yz}^y \pi_{zy}^z = p'(\cdot) (3p'(\cdot) + p''(\cdot)(y + z)) > 0.$$

The output changes pertaining to x and t are respectively given by

$$y_x^{**} = \frac{c'(\cdot)\pi_{zz}^z}{\det(J)} > 0, z_x^{**} = -\frac{c'(\cdot)\pi_{zy}^z}{\det(J)} < 0, y_t^{**} = z_t^{**} = \frac{p'(\cdot)}{\det(J)} < 0.$$

The aggregate output change of x is clearly positive:

$$y_x^{**} + z_x^{**} = \frac{p'(\cdot)c'(\cdot)}{\det(J)} > 0. \quad (\text{A.7})$$

Due to the Envelope theorem:

$$\pi_x^{y^{**}} = \pi_z^y z_x^{**} + \pi_x^y = p'(\cdot)y^{**} z_x^{**} - c'(\cdot)y = -c'(\cdot)y^{**} \frac{4p'(\cdot) + p''(\cdot)(y^{**} + 2z^{**})}{3p'(\cdot) + p''(\cdot)(y^{**} + z^{**})} > 0, \quad (\text{A.8})$$

where we have used

$$p'(\cdot)z_x^{**} = -p'(\cdot)\frac{c'(\cdot)\pi_{zy}^z}{\det(J)} = -c'(\cdot)\frac{p'(\cdot) + p''(\cdot)z^{**}}{3p'(\cdot) + p''(\cdot)(y^{**} + z^{**})}.$$

Furthermore,

$$\pi_x^{z^{**}} = \pi_y^z y_x^{**} = p'(\cdot)z^{**} y_x^{**} < 0. \quad (\text{A.9})$$

As $z_{x_t}^{**} = 0$ we have:

$$\pi_{x_t}^{y^{**}} = \pi_{y_t}^y y_t^{**} + \pi_{z_t}^y z_t^{**} + \pi_{x_t}^y = -y_x^* + p'(\cdot) y_t^* z_x^* - c'(\cdot) y_t^* < 0.$$

A.5 Welfare in the duopoly case

Since $t_1 = \theta_1$ and $t_2 = \theta_2$, Proposition 2 carries over qualitatively to the duopoly case as the change in domestic welfare is now ambiguous in both periods:

$$\begin{aligned} W_{1_x}(\cdot) &= -\alpha p'(y_1^{**}(\theta_1))(y_{1_x}^{**}(\theta_1) + z_{1_x}^{**}(\theta_1)) + \pi_{1_x}^{z^{**}}(\theta_1), \\ \hat{W}_{2_x}(\cdot) &= -\alpha \int_{\underline{\theta}}^{\bar{\theta}} \left[\int_0^{y_2^*} p'(y_2^{**}(\theta) + z_2^{**}(\theta)) y_{2_x}^{**}(\theta) dF(\theta) \right] \\ &\quad + \int_{\underline{\theta}}^{\bar{\theta}} \pi_{2_x}^{z^{**}}(\theta) dF(\theta) - q \int_{\theta_1}^{\bar{\theta}} [\pi_{1_x}^{y^{**}}(\theta_1) - \pi_{2_x}^{y^{**}}(\theta)] dF(\theta) \end{aligned} \tag{A.10}$$

The sign of both $W_{1_x}(\cdot)$ and $W_{2_x}(\cdot)$ is ambiguous as $y_x^* + z_x^*$ is clearly positive and $\pi_x^{z^{**}}$ is clearly negative,¹⁵ as is the last ISDS-induced term in $W_{2_x}(\cdot)$.

A.6 Proof of Proposition 3

From (3), we have that $\pi_x^* = -c'(\cdot) y^*$, and (A.8) shows that $\pi_x^{y^{**}} = -c'(\cdot) y^{**} \frac{4}{3}$ for $p''(\cdot) = 0$. For a given investment level \bar{x} , $\pi_x^{y^{**}} \geq \pi_x^*$ if

$$-c'(\bar{x}) y^{**} \frac{4}{3} \geq -c'(\bar{x}) y^* \Leftrightarrow y^{**} \frac{4}{3} \geq y^*.$$

For $p = a - b(y + z)$ and $t = \theta$,

$$y^* = \frac{a - c(\bar{x}) - \theta}{2b}, y^{**} = \frac{a - 2c(\bar{x}) - \theta}{3b},$$

so that

$$y^{**} \frac{4}{3} \geq y^* \Rightarrow \gamma \geq \tilde{\gamma}(\bar{x}, \theta) = \frac{a + 7c(\bar{x}) - \theta}{8}.$$

Since $\tilde{\gamma}(\bar{x}, \theta) \leq \tilde{\gamma}(0, \bar{\theta})$, $\pi_x^{y^{**}} \geq \pi_x^*$ for any \bar{x} if $\gamma \geq (a + 7c(0) - \bar{\theta})/8$, and thus the marginal benefit from a cost-reducing investment is larger for any given \bar{x} under duopoly, leading to a higher investment level.

¹⁵See (A.7) and (A.9), respectively, in Appendix A.4.

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