

ANTI-LOBBYING GAINS FROM INTERNATIONAL AGREEMENTS

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October 2019

Abstract

I argue that an important potential benefit of international agreements is to reduce wasteful rent-seeking activities by domestic and foreign special interest groups, through a reduction in policy discretion. The presence of foreign lobbying generates a novel type of international externality: by inviting wasteful rent-seeking by foreign lobbies, the presence of policy discretion itself generates a negative international externality. I examine the potential anti-lobbying effects of three salient types of international rules: exact policy commitments, policy bounds and non-discrimination rules. Unlike exact policy commitments, which remove policy discretion and hence shut down ex-post lobbying, policy bounds may invite ex-post lobbying and hence may forego part or all of the potential anti-lobbying gains. I also find that policy bounds may lead to mixed-strategy equilibria of the rent-seeking game. A non-discrimination rule can reduce rent-seeking by foreign lobbies, by injecting a free-rider problem in the strategic interaction between these lobbies, and under some conditions can achieve all the potential anti-foreign-lobbying gains.

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1. Introduction

Policy discretion invites wasteful rent-seeking activities by special interest groups. This insight has been emphasized by many scholars in economics and political science, including Tullock (1967), Krueger (1974), Bhagwati (1982), Bhagwati and Srinivasan (1982) and Magee, Brock and Young (1989). When a government has wide discretion in choosing a policy, lobbies have strong incentives to spend resources in order to seek access to the government and influence its decision. In this way, inefficiencies can be caused not only by the distortion in the policy itself, but also by the *process* that leads to it. This is true not only for domestic lobbies, but also for foreign special interest groups, to the extent that the government’s policy choice has an impact on foreign countries.

While the importance of rent-seeking activities has been widely recognized, little or no attention has been paid to the potential role of international commitments in reducing such activities. To the extent that they reduce policy discretion, international agreements can reduce rent-seeking waste, an effect that I refer to as the “anti-lobbying” gains from international agreements. The existing literature on international agreements has focused almost entirely on the gains associated with the more efficient *policies* that such agreements can bring about. The contribution of this paper is to take a first step toward a theoretical examination of the anti-lobbying gains from international agreements. I will consider lobbying by both domestic and foreign interest groups, thus highlighting a distinction between anti-*domestic*-lobbying gains and anti-*foreign*-lobbying gains; the importance of this distinction will become clear shortly.

To be clear, in this paper I examine the anti-lobbying effects of some salient types of international rules taking such rules as exogenous. I do not investigate the incentives of politically-motivated governments to commit to international rules in the first place, nor the rules that can be expected to arise endogenously. Nevertheless, my analysis suggests a new insight regarding the motives for international agreements. The existing literature has highlighted two broad reasons why governments may want to sign international agreements: one is that international agreements may serve as an escape from “prisoner’s dilemma” situations generated by the presence of international policy externalities;¹ and the other is that international agree-

¹In the area of trade policy, the international externality that has received most attention is the standard terms-of-trade externality (see for example Bagwell and Staiger, 1999). In settings with market imperfections or multinationals, additional international externalities from trade policy can arise, including profit-shifting externalities (e.g. Brander and Spencer, 1985, and Ossa, 2014), “firm-delocation” externalities (e.g. Venables, 1987, and Ossa, 2011) and local-price externalities in the presence of multinationals (e.g. Blanchard, 2010).

ments can help governments tie their own hands vis-a-vis domestic actors, such as industrial lobbies.² While the idea of anti-*domestic*-lobbying gains fits with the domestic-commitment motive for international agreements, the idea of anti-*foreign*-lobbying gains combines a domestic-commitment aspect with an international-externality aspect: the presence of policy discretion *itself* generates a negative international externality, to the extent that it invites rent-seeking activities by foreign groups and the associated deadweight loss falls (at least in part) on foreign countries.

The above observation in turn has an interesting implication. The anti-domestic-lobbying gains can in principle be realized through a unilateral commitment, such as a constitutional rule.³ On the other hand, realizing the anti-foreign-lobbying gains may require an international agreement, because these gains accrue at least in part to foreign countries, so in a non-cooperative environment the domestic government does not fully internalize the gains from reducing policy discretion.⁴ When viewed from this perspective, the idea of anti-foreign-lobbying gains suggests an interesting bridge between the international-externality theory and the domestic-commitment theory for international agreements.

It has been suggested by some authors (for example Gawande et al., 2006) that the presence of foreign lobbying may reduce the welfare gains from international agreements. The basic idea is that foreign lobbies may counteract the influence of domestic lobbies, thus bringing noncooperative policies closer to their efficient levels. My model highlights a force that goes in the opposite direction: the potential for foreign lobbying can increase the gains from international agreements, if the latter generate anti-foreign-lobbying gains.

More generally, see Maggi (2014) for a discussion of the various types of international externalities from trade policy.

²See for example Staiger and Tabellini (1987), Maggi and Rodriguez-Clare (1998, 2007) and Mitra (2002).

³The qualifier “in principle” is important. Maggi and Rodriguez-Clare (1998, 2007) argue that it is not always feasible for a government to make long-term unilateral commitments (e.g. constitutional changes), and international agreements can be an easier way to mitigate domestic-commitment problems. This idea applies to any country, but with particular force to countries that have weak domestic institutions.

⁴As my discussant Bob Staiger pointed out, it is not immediately obvious that an international agreement imposing constraints on policy choices is needed to realize the anti-foreign-lobbying gains. Can such gains be achieved by a unilateral law that bans foreign lobbying? In my opinion it is unlikely that a government would have an incentive to make such unilateral commitment, for the very reason that the benefits from this commitment accrue at least in part to foreign countries. Another possible way to achieve the anti-foreign-lobbying gains might be to sign an agreement where each country commits to banning foreign lobbying. This seems like a theoretically sound idea, but it is not obvious to what extent this kind of agreement is politically viable and how it compares with an agreement that constrains policy choices. These are fascinating questions that I do not pursue in this paper, since I only focus on the effects of exogenously-given international rules on rent-seeking activities.

It is important to emphasize that, while I will often use trade agreements as the primary example for my analysis, the main logic applies to any policy area where both domestic and foreign lobbies play an important role. For example, consider FDI policies or product regulations. It is hard to dispute that these policy areas are heavily influenced by lobbying, and given the important international externalities exerted by these policies, it is natural to expect that lobbying crosses national boundaries. Thus, to the extent that international agreements reduce a government’s policy discretion, the potential anti-lobbying gains that I explore in this paper can arise in these policy areas as well.

Next I preview my model and the main results. I consider a simple setting where a government’s policy choice can be influenced by domestic and foreign interest groups. These groups have opposite interests regarding the policy, thus giving rise to *countervailing lobbying*. The lobbying game is modeled as a two-stage game: in the first stage, each lobby decides whether to seek access to the government (“rent seeking”), in which case it incurs a resource cost; in the second stage, the lobbies that have invested in rent-seeking engage in Nash bargaining with the government. If an international agreement is in place, the same rent-seeking game described above takes place, except that the policy is subject to the constraints set by the agreement.

To put the anti-lobbying gains from international agreements in sharp relief, I start by focusing on the simplest and most rigid type of international rules, namely *exact policy commitments*. This is a natural benchmark to consider, but international agreements rarely strip governments *completely* of their policy space, thus I also focus on some common types of international rules that preserve policy discretion along certain dimensions – namely *policy bounds* and *non-discrimination rules* – and examine how they affect the equilibrium level of rent-seeking waste.⁵

Next I focus on policy bounds, and in particular on policy caps (i.e. rules of the kind $t \leq \bar{t}$). Examples of policy caps are tariff bindings for trade agreements or emission caps for environmental agreements, but the analysis extends in an obvious way to the case of policy floors, such as minimum product standards or environmental taxes. Unlike exact policy commitments (i.e. rules of the kind $t = \bar{t}$), policy caps may invite wasteful ex-post lobbying, so their implications are more subtle.

⁵The model focuses on the costs of policy discretion, generated by the induced rent-seeking waste, and abstracts from the possible benefits of policy discretion, such as the flexibility it affords in the presence of uncertainty (see for example Horn, Maggi and Staiger, 2010, and Mueller, 2019). More on this in the concluding section.

In particular, I consider a policy cap \bar{t} that is binding and is not so low that it removes the foreign lobby's benefit from bargaining with the government (otherwise the cap is equivalent to an exact policy commitment). A policy cap has different effects depending on whether or not it affects the disagreement policy in the government-lobbies bargain. If it does not affect the disagreement point, the policy cap weakly reduces the equilibrium rent-seeking waste relative to the non-cooperative equilibrium, but it foregoes all anti-lobbying gains if the rent-seeking costs are below some threshold levels. If, on the other hand, the policy cap becomes the new disagreement policy, a surprising result emerges: if rent-seeking costs are below some threshold levels, the policy cap leads to a mixed strategy equilibrium of the rent-seeking game. The basic reason is that the foreign lobby has incentive to participate in the bargain only if the domestic lobby does not (because only in this case it can convince the government to lower the policy below the bound) and the domestic lobby has incentive to participate only if the foreign lobby does too (because it wants to prevent the policy from being lowered below the cap). In this case each lobby engages in rent-seeking with some probability, so in expectation the policy cap reduces rent-seeking waste relative to the non-cooperative scenario, but does not eliminate it.

The model highlights a shortcoming of policy caps relative to exact policy commitments, in that policy caps forego some of the potential anti-lobbying gains. This stands in interesting contrast with the point made by Maggi and Rodriguez-Clare (2007), who highlight a beneficial effect of policy caps: by inviting ex-post lobbying, a policy cap in a given sector induces the lobby to pay contributions to the government ex-post, thus reducing the net returns from investment in that sector, and hence reducing the ex-ante misallocation of resources. Taken together, these results suggest that policy discretion can have two opposite effects on the inefficiencies caused by lobbying, depending on how it affects the lobbying activities: if policy discretion induces lobbies to make monetary payments to the government and hence lowers the net returns to lobbying, it is beneficial; but if it induces lobbies to engage in wasteful activities, it is harmful.

In section 3, I consider a simple three-country version of the model in order to examine the potential role of non-discrimination rules. In the area of trade policy, the most prominent non-discrimination rule is the Most Favored Nation (MFN) rule, which prohibits governments from discriminating across trading partners. But non-discrimination rules are relevant also in other policy areas, such as foreign direct investment and product regulations.

In the absence of non-discrimination rules, a government is free to make policy concessions to foreign interest groups on a bilateral basis, potentially inducing a "spaghetti bowl" of bilateral

rent-seeking activities (I owe the spaghetti-bowl metaphor to Jagdish Bhagwati).⁶ Imposing a non-discrimination rule, on the other hand, can reduce or even eliminate rent-seeking by foreign lobbies, because it injects a free-rider problem in the strategic interaction between foreign lobbies. For example, in the trade policy area, the MFN rule implies that a foreign lobby seeking a lower tariff from the US government has to effectively lobby on behalf of all foreign lobbies, and this may discourage foreign lobbies from engaging in rent-seeking. This suggests that it may be possible to achieve part or all of the potential anti-foreign-lobbying gains without removing all policy discretion, but simply imposing a non-discrimination rule.

I use my model to examine formally the above intuition. I show that, relative to the non-cooperative scenario, imposing a non-discrimination rule weakly reduces the number of foreign lobbies that engage in rent-seeking in equilibrium, and the reduction is strict for a range of the rent-seeking cost parameter. Thus, for any ex-ante distribution of the rent-seeking cost parameter, imposing a non-discrimination rule decreases the equilibrium rent-seeking waste in a first-order stochastic sense. At the same time, however, by discouraging foreign lobbying a non-discrimination rule may worsen the policy outcome relative to the non-cooperative scenario, because as mentioned above, foreign lobbying may have a positive influence on the policy outcome by counteracting the domestic lobby. This points to an interesting tradeoff between the anti-foreign-lobbying gains from a non-discrimination rule and its possible negative consequences on the policy outcome.

Before proceeding, it is important to ask whether two key ingredients of my theory, namely the presence of foreign lobbying and the resource costs of lobbying, are empirically important.

Regarding the first question, there is little doubt that cross-national lobbying is a phenomenon of first-order empirical importance, especially across OECD countries. For example, in 2017 at least \$534.7 million was spent by foreign interests to influence U.S. policy, with South Korea topping the list of countries, and trade policy topping the list of policy areas.⁷ In the academic literature, there are numerous papers that document the importance of foreign lobbying even before the Trump administration, for example Gawande, Krishna and Mitra (2006), Stoyanov (2009), Gawande, Maloney and Montes-Rojas (2018) and You (2018).

⁶A recent example of such spaghetti bowl is the flurry of foreign lobbying activities that followed Trump's announcement of the 2018 steel and aluminum tariffs, whereby a number of foreign governments and interest groups frantically engaged the Trump administration in order to obtain bilateral exemptions to the tariffs. As a result of this, exemptions were granted to South Korea, Brazil, Argentina, Mexico and other countries.

⁷See opensecrets.org/news/2018/08/foreign-interests-fara-lobby-watch-exclusive.

The other empirical question is, what is the magnitude of the resource costs generated by lobbying? This question is difficult to answer, but there is evidence that these costs are of first-order importance. For example, over the period 2009-2018, lobbying expenditures in the U.S. amounted to about \$34 billion (Center for Responsive Politics). This amount was roughly 10 times larger than the amount of campaign contributions (Ludema, Mayda and Mishra, 2018). As another example, the Sunlight Foundation reports that the top 200 lobbying organizations from 2007 to 2012 spent a combined \$5.3 billion on federal lobbying. Arguably, lobbying expenditures are at least in part wasteful, since they pay for lobbyists' time, office space, travel costs and other inputs in the lobbying activity; all of these inputs could alternatively be used to produce goods and services. Incidentally, over the period 2009-2018 the number of registered lobbyists in the U.S. varied between 10,000 and 15,000. Moreover, the resource costs caused by rent-seeking activities arguably go well beyond the direct costs as measured by lobbying expenditures. For example, if a firm diverts resources from investment or innovative activities (e.g. R&D) in order to engage in rent-seeking, this may reduce its productivity. As another example, multinationals may choose to make foreign direct investments that they would not otherwise make if this can help them get access to foreign governments and influence their policies.⁸

In the related literature, the paper that is closest to the present one is arguably Mitra (2002). He considers a small-country government that chooses a tariff under the influence of domestic lobbies. A producer group can get organized into a lobby by paying a fixed setup cost. Mitra shows that the government may want to commit to free trade in order to prevent producer groups from incurring the fixed cost of getting organized. Mitra's fixed cost of lobby formation plays a similar role to my domestic rent-seeking cost, but he does not consider foreign lobbying, which plays a central role in my analysis. Also, while Mitra only allows for an all-or-nothing commitment to free trade, I consider a wider set of feasible agreements, including exact tariff commitments, tariff caps and non-discrimination rules. Finally, unlike Mitra, I allow the home country to be large and face multiple foreign countries.

This paper is also broadly related to the macroeconomics literature on rules versus discretion that was pioneered by Kydland and Prescott (1977). The anti-lobbying effects of international commitments that I highlight in this paper may be relevant also in the context of macroeco-

⁸There are a few papers that examine how foreign direct investment can be used as a tool to influence policy makers in the host country: see for example Bhagwati et al. (1987) and Blonigen and Figlio (1998).

conomic policies, and can be viewed as a further benefit of commitment in addition to the ones highlighted by that literature.

The paper is organized as follows. In section 2, I consider a two-country model to make a number of key points about the anti-lobbying gains from international agreements. In section 3, I extend the model to a three-country setting, in order to examine the role of non-discriminatory rules. Section 4 concludes.

2. A Simple Two-Country Model

I start by considering a simple two-country model. As a running example I will often consider a trade application where governments choose tariffs, but the model is more general and can be applied to other policy areas as well, such as investment policies, environmental policies or immigration policies.

I consider two separable and mirror-image sectors, one where the Home government chooses a policy and the Foreign government is passive, and another one where the roles are reversed. In a trade application where countries choose tariffs, the Home government would choose a tariff in one sector, and the Foreign government would choose a tariff in the other sector.

Given this simple structure, I can focus on the sector where Home is policy-active, and let t denote Home's policy. The Home government can be influenced by two lobbies: a domestic lobby (h) and a foreign lobby (f). There are two types of cost that a lobby can incur: *contributions* to the Home government, which are pure transfers; and *rent-seeking expenditures*, which are resource costs.

More specifically, I model the interaction between the government and the lobbies as a Nash bargain, and I assume that lobby $j \in \{h, f\}$ has to incur a resource cost ξ^j in order to access the bargain with the government. I will refer to these costs interchangeably as “rent-seeking costs” or “access costs.” I also assume that any access cost incurred by the foreign lobby falls entirely on the Foreign country, so it is not relevant for Home welfare.

I now describe the payoffs of the Home government and the two lobbies. The payoff of lobby $j \in \{h, f\}$, which I denote L^j , has three components: the gross payoff from policy t , which I denote $\Pi^j(t)$, the contributions paid to the government, denoted C^j , and the rent-seeking cost. I assume:

$$L^j = \Pi^j(t) - A^j \xi^j - C^j, \quad j = h, f$$

where A^j is a dummy that is equal to one if the lobby j seeks access to the government, and zero otherwise.

I assume that $\Pi^h(t)$ is increasing in t , while $\Pi^f(t)$ is decreasing in t . Thus the domestic lobby and the foreign lobby have opposing policy interests.⁹

The Home government's payoff has also three components: gross welfare, which I denote $W^h(t)$, total contributions from lobbies, denoted C , and the domestic rent-seeking cost:

$$G^h = \alpha (W^h(t) - A^h \xi^h) + C,$$

where the parameter α captures the welfare-mindedness of the government, in the same spirit as Grossman and Helpman (1994). Note the implicit assumption that the deadweight loss associated with the foreign lobby's rent-seeking activity falls on the foreign country, thus the Home government does not care about ξ^f .

The Foreign government's payoff is denoted $G^f = W^f(t) - A^f \xi^f$. I assume that $W^h(t)$ has an interior maximum at t^w ,¹⁰ while $W^f(t)$ is decreasing in t . It should be kept in mind that the notation above refers to a single sector, and there is a mirror-image sector where roles are reversed.

The timing of the game is as follows. In the first stage, each lobby chooses whether to incur the access cost. In the second stage, the lobbies that have done so engage in Nash bargaining with the government. For simplicity I assume that the government has no bargaining power, and if both lobbies participate in the bargain they have symmetric power.¹¹ In case both lobbies participate in the bargain, I allow them to compensate each other with side transfers. I will focus on the subgame perfect equilibria of this game.

⁹Assuming that the domestic and foreign lobbies have opposing policy interests is reasonable in settings where the policy changes the balance of competition between domestic and foreign producers. This is the case, for example, if domestic importers and foreign exporters of a given good attempt to influence the choice of Home's import barriers. It is not difficult to think of settings where the interests of domestic and foreign lobbies are aligned, but even in this case the main qualitative results of the paper would hold.

¹⁰The unilateral welfare-maximizing tariff t^w may reflect classic terms-of-trade gains from protection, or new-trade-theory motives such as profit-shifting or firm-delocation gains.

¹¹If the government had positive bargaining power the results would change in a fairly obvious direction: the larger the government's bargaining power, the less lobbies can gain from the bargain, and hence the lower the incentives of lobbies to incur the access cost. This would decrease, other things equal, the anti-lobbying gains from international agreements, but would not affect the key insights of the paper.

2.1. Non-cooperative equilibrium

I start by considering the non-cooperative scenario. Let us proceed by backward induction and examine the four possible subgames:

1. Suppose only the domestic lobby incurs the access cost ($A^h = 1$, $A^f = 0$). The policy that results from the bargain in this case is

$$t_h \equiv \arg \max_t [\alpha W^h(t) + \Pi^h(t)].$$

Note that, in a trade model a' la Grossman and Helpman (1995), t_h would be the analog of the “trade war” tariff, which incorporates terms-of-trade and domestic-lobbying considerations.

Let us write the joint surplus for this bargain, which is the difference between the maximum attainable joint payoff and the joint disagreement payoff:

$$S_h = (\alpha W^h(t_h) + \Pi^h(t_h)) - (\alpha W^h(t^w) + \Pi^h(t^w)).$$

Note that the disagreement policy is t^w , the unilateral welfare-maximizing policy: this is the policy that the Home government would choose in the absence of any lobbying.

We can now derive the equilibrium payoffs for the two lobbies in this subgame. The domestic lobby gets its disagreement payoff $\Pi^h(t^w)$ plus the full bargaining surplus S_h (given that the government has no bargaining power), net of the access cost ξ^h , while the foreign lobby simply gets the profits associated with the policy t_h :

$$\begin{aligned} L^h &= \Pi^h(t^w) + S_h - \xi^h \\ L^f &= \Pi^f(t_h) \end{aligned}$$

2. If both lobbies incur the access cost and bargain with the government ($A^h = A^f = 1$), the resulting policy is

$$t_{hf} \equiv \arg \max_t [\alpha W^h(t) + \Pi^h(t) + \Pi^f(t)].$$

It is easy to show that $t_{hf} < t_h$, because Π^f is decreasing in t , so the participation of the foreign lobby in the bargain pushes down the level of t . On the other hand, t_{hf} may be higher or lower than t^w .¹²

¹²In a specific-factor trade model where t is interpreted as a tariff, t_{hf} would be higher (lower) than t^w if the relative domestic supply $\frac{y^h}{y^f}$ is large (small) relative to the country's terms-of-trade power. To see this, note

The joint surplus in this case is

$$S_{hf} = (\alpha W^h(t_{hf}) + \Pi^h(t_{hf}) + \Pi^f(t_{hf})) - (\alpha W^h(t^w) + \Pi^h(t^w) + \Pi^f(t^w)).$$

Given that the lobbies have equal bargaining power, the equilibrium payoffs for the lobbies in this subgame are:

$$\begin{aligned} L^h &= \Pi^h(t^w) + \frac{1}{2}S_{hf} - \xi^h \\ L^f &= \Pi^f(t^w) + \frac{1}{2}S_{hf} - \xi^f \end{aligned}$$

3. If only the foreign lobby incurs the access cost ($A^h = 0$, $A^f = 1$), the resulting policy is

$$t_f \equiv \arg \max_t [\alpha W^h(t) + \Pi^f(t)].$$

Note that $t_f < t^w$, since the foreign lobby prefers lower levels of t and hence pushes t below the level that the Home government would choose absent any lobbying. In this case the joint surplus is:

$$S_f = (\alpha W^h(t_f) + \Pi^f(t_f)) - (\alpha W^h(t^w) + \Pi^f(t^w)),$$

therefore the equilibrium payoffs for the lobbies in this subgame are:

$$\begin{aligned} L^h &= \Pi^h(t_f) \\ L^f &= \Pi^f(t^w) + S_f - \xi^f \end{aligned}$$

4. If neither lobby seeks access ($A^h = A^f = 0$), of course there is no bargain and the policy outcome is t^w .

We are now ready to back up and examine the equilibrium access decisions by the lobbies. These are simply the Nash equilibria of the game summarized by the following payoff matrix (where each entry indicates the payoffs of the lobbies (L^h, L^f) for the corresponding access decisions):

that the tariff is the wedge between domestic and foreign price ($p^h = p^f + t$), and the derivative of the profit function is the supply function ($\frac{d\Pi^j}{dp} = y^j(p)$). Next notice that $t_{hf} > t^w$ if $\frac{d\Pi^h}{dt} + \frac{d\Pi^f}{dt} > 0$ for all t . We can thus write $\frac{d\Pi^h}{dt} = \frac{d\Pi^h}{dp} \frac{dp}{dt} = y^h(1 + \frac{dp^*}{dt})$, while $\frac{d\Pi^f}{dt} = \frac{d\Pi^f}{dp^*} \cdot \frac{dp^*}{dt} = y^f \frac{dp^*}{dt}$. It follows that $t_{hf} > t^w$ if $\frac{y^h}{y^f} > \frac{-\frac{dp^*}{dt}}{1 + \frac{dp^*}{dt}}$ for all t . And conversely, $t_{hf} < t^w$ if $\frac{y^h}{y^f} < \frac{-\frac{dp^*}{dt}}{1 + \frac{dp^*}{dt}}$ for all t .

	$A^f = 0$	$A^f = 1$
$A^h = 0$	$\Pi^h(t^w), \Pi^f(t^w)$	$\Pi^h(t_f), \Pi^f(t^w) + S_f - \xi^f$
$A^h = 1$	$\Pi^h(t^w) + S_h - \xi^h, \Pi^f(t_h)$	$\Pi^h(t^w) + \frac{1}{2}S_{hf} - \xi^h, \Pi^f(t^w) + \frac{1}{2}S_{hf} - \xi^f$

From inspection of the above matrix, it follows immediately that:

- (i) $A^h = 1, A^f = 1$ is an equilibrium if $\xi^h < \frac{1}{2}S_{hf} + \Pi^h(t^w) - \Pi^h(t_f)$ and $\xi^f < \frac{1}{2}S_{hf} + \Pi^f(t^w) - \Pi^f(t_h)$
- (ii) $A^h = 0, A^f = 1$ is an equilibrium if $\xi^h > \frac{1}{2}S_{hf} + \Pi^h(t^w) - \Pi^h(t_f)$ and $\xi^f < S_f$
- (iii) $A^h = 1, A^f = 0$ is an equilibrium if $\xi^h < S_h$ and $\xi^f > \frac{1}{2}S_{hf} + \Pi^f(t^w) - \Pi^f(t_h)$
- (iv) $A^h = 0, A^f = 0$ is an equilibrium if $\xi^h > S_h$ and $\xi^f > S_f$.

The above equilibrium conditions are intuitive in one respect but non-trivial in another respect. The intuitive aspect is that a lobby is more likely to engage in rent-seeking if its access cost is lower. So, for example, the outcome where the domestic lobby participates and the foreign lobby stays out is an equilibrium if ξ^h is lower than a certain threshold and ξ^f is higher than a certain threshold. The non-trivial aspect is that there may be multiple equilibria, and a pure-strategy equilibrium may fail to exist, as one can easily verify.

The possibility of multiple or non-existent equilibria is perhaps interesting, but in this paper I am interested in studying whether and how international commitments can lead to a reduction in rent-seeking activities relative to the non-cooperative equilibrium, so for this purpose it is natural to focus on the parameter region where there is a unique equilibrium in which both lobbies engage in rent-seeking ($A^h = A^f = 1$). The following proposition (which is straightforward to prove) characterizes such parameter region, letting $\tilde{\xi}^h \equiv \min\{\frac{1}{2}S_{hf} + \Pi^h(t^w) - \Pi^h(t_f), S_h\}$ and $\tilde{\xi}^f \equiv \min\{\frac{1}{2}S_{hf} + \Pi^f(t^w) - \Pi^f(t_h), S_f\}$:

Proposition 1. *If $\xi^h < \tilde{\xi}^h$ and $\xi^f < \tilde{\xi}^f$, in the absence of international agreements there is a unique equilibrium of the rent-seeking game, in which both lobbies engage in rent-seeking ($A^h = A^f = 1$).*

As mentioned above, in what follows I will assume that the conditions stated in Proposition 1 are satisfied ($\xi^h < \tilde{\xi}^h$ and $\xi^f < \tilde{\xi}^f$), because this case highlights more sharply the potential anti-lobbying effects of international commitments.

In light of the analysis above, the key mechanism through which an international commitment can discourage rent-seeking can already be anticipated. The key point is that a policy

commitment may reduce the available joint surplus for the government and the lobbies. For example, an exact policy commitment removes policy discretion and hence shrinks the available surplus to zero, thus neither lobby will engage in rent-seeking in equilibrium ($A^h = A^f = 0$). If, on the other hand, policy discretion is reduced but not eliminated, the available surplus will be correspondingly reduced but not eliminated, thus there may still be wasteful lobbying in equilibrium.

Next I dig deeper into the effects of international commitments.

2.2. Exact Policy Commitments

The natural starting point is to consider the most rigid type of rule, namely one that specifies an exact policy level, say $t^A = \bar{t}$. This kind of rule is not very frequent in real-world international agreements, but it is an important benchmark to consider. Clearly, this type of agreement removes all policy discretion, and hence it shuts down any ex-post lobbying.

To examine the welfare gain from an exact policy commitment, I first define a benchmark notion: the “traditional” welfare gain from an agreement is the increase in global welfare generated by that agreement relative to the noncooperative equilibrium when rent-seeking costs are zero. Given $\xi^f = \xi^h = 0$, in the noncooperative equilibrium both lobbies engage in rent-seeking and the resulting tariff is t_{hf} , thus the traditional welfare gain from an agreement $t^A = \bar{t}$ is $W(\bar{t}) - W(t_{hf})$, where $W(t) \equiv W^h(t) + W^f(t)$.

We can now write down the total welfare gain generated by an agreement $t^A = \bar{t}$ in the presence of positive rent-seeking costs. Recall that I am focusing on the case where $\xi^h < \tilde{\xi}^h$ and $\xi^f < \tilde{\xi}^f$, thus in the noncooperative equilibrium both lobbies engage in rent-seeking and the resulting tariff is still t_{hf} . It follows that the total welfare gain from an agreement $t^A = \bar{t}$ is given by $W(\bar{t}) - W(t_{hf}) + \xi^h + \xi^f$, because such agreement eliminates all the rent-seeking waste that occurs in the noncooperative equilibrium. Thus I can state:

Proposition 2. *Assume $\xi^h < \tilde{\xi}^h$ and $\xi^f < \tilde{\xi}^f$, so that both lobbies engage in rent seeking in the noncooperative equilibrium. Then an agreement of the type $t^A = \bar{t}$ provides “anti-lobbying” gains of $\xi^h + \xi^f$ in addition to the traditional welfare gains.*

The anti-lobbying gains highlighted by Proposition 2 can be decomposed into “anti-domestic-lobbying” gains – captured by ξ^h – and “anti-foreign-lobbying” gains – captured by ξ^f . One

reason why this distinction is important, as discussed in the Introduction, is that the potential for foreign lobbying generates a type of international externality that is novel and distinct from the “direct” international policy externality: by eliciting wasteful rent-seeking by foreign groups, the presence of policy discretion itself generates a negative international externality.¹³ This in turn suggests that realizing the anti-foreign-lobbying gains requires some kind of international agreement, because a government does not fully internalize the gains from reducing policy discretion. This contrasts with the anti-domestic-lobbying gains, which can at least in principle be achieved through a unilateral commitment.

This is a good juncture to discuss the relationship between the anti-foreign-lobbying gains highlighted here and the argument made by some authors, for example Gawande et al. (2006), that the presence of foreign lobbying may improve the efficiency of non-cooperative policies, and hence may reduce the welfare gains from international agreements. This argument can easily be understood within my model, by focusing on the case where there are no rent-seeking costs ($\xi^h = \xi^f = 0$). To make it concrete, consider a trade application where t is a tariff; it will become clear that the same logic applies whenever the domestic lobby pushes the policy in a direction that hurts the foreign lobby as well as foreign welfare.

In the absence of foreign lobbying, the non-cooperative tariff (denoted t_h) maximizes $aW^h(t) + \Pi^h(t)$. Note that t_h is higher than the global-welfare-maximizing level, for two reasons: first, the government does not take into account the negative international externality from the tariff (W^f is decreasing in t), and second, the domestic lobby pushes for a higher tariff (Π^h is increasing in t). In the presence of foreign lobbying, on the other hand, the non-cooperative tariff (denoted t_{hf}) maximizes $aW^h(t) + \Pi^h(t) + \Pi^f(t)$. Since foreign profits $\Pi^f(t)$ are decreasing in t , it follows that $t_{hf} < t_h$, thus introducing foreign lobbying pushes down the non-cooperative tariff and hence increases global welfare, unless the impact of foreign lobbying is so strong that t is pushed to a much lower level than the efficient one.¹⁴

The above argument suggests that foreign lobbying tends to reduce the inefficiency of non-cooperative policies. Clearly, foreign lobbying may affect also the policies selected by an international agreement. The nature of this effect will depend on how the agreement is endogenously

¹³But note that the foreign-rent-seeking externality is tightly linked to the standard direct policy externality: clearly, if t had no direct externality on the foreign country, then $\frac{d}{dt}\Pi^f(t) = 0$ and there would be no reason for foreign producers to lobby the domestic government.

¹⁴In a model of trade without market imperfections, the global-welfare maximizing tariff of course is zero, and foreign lobbying can decrease global welfare only if it leads to a large import subsidy (a very negative t_{hf}), a possibility that is not very realistic.

determined – which I am not investigating here – but the argument above has a simple implication: to the extent that it improves the efficiency of non-cooperative policies, foreign lobbying reduces the potential global-welfare gains from an international agreement, that is the distance between the welfare level at the non-cooperative equilibrium and the maximum attainable welfare level.

While the above effect of foreign lobbying is present in my model, the model also highlights a force that goes in the opposite direction: the fact that foreign lobbying generates rent-seeking waste tends to *increase* the welfare gains from international agreements. If foreign lobbying is not feasible, the potential anti-lobbying gain from an international agreement in my model is just ξ^h , while in the presence of foreign lobbying the potential anti-lobbying gain is $\xi^h + \xi^f$. The net effect can go either way, and it is possible that foreign lobbying increases the maximum potential welfare gains from an international agreement.

2.3. Policy Caps

In this section I consider a less rigid type of international rule, namely a *bound* on the policy t . This is a rule that allows one-sided policy discretion. Since in the present setting an increase in t exerts a negative international externality, I will consider policy caps of the kind $t \leq \bar{t}$. Real-world examples of policy caps are tariff ceilings for trade agreements, or emission caps for environmental agreements. If an increase in t exerted a positive international externality instead, we would consider a lower bound for t , and the analysis would be qualitatively similar; an example of a lower policy bound might be a minimum product standard or a minimum environmental tax.

I will consider a policy cap \bar{t} that is binding. Recall the assumption that $\xi^h < \tilde{\xi}^h$ and $\xi^f < \tilde{\xi}^f$, so that in the noncooperative equilibrium both lobbies engage in rent-seeking and the resulting policy is t_{hf} . For the policy cap to be binding, it has to be strictly lower than the noncooperative policy level, so I consider a cap $\bar{t} < t_{hf}$.

Intuitively, an agreement in the form of a policy cap may forego some or all of the anti-lobbying gains, because it does not completely remove policy discretion and thus it may not shut down wasteful ex-post lobbying. But the analysis will reveal further and subtle implications of policy caps.

Let us revisit the rent-seeking game under the policy cap. First note that, in case of disagreement at the bargaining stage, the government will choose the policy that maximizes

welfare subject to the constraint $t \leq \bar{t}$, and since the unconstrained welfare-optimal policy is t^w , it follows that the disagreement policy is $t_d \equiv \min\{t^w, \bar{t}\}$.

Going by backward induction, let us re-examine the four subgames:

1. If only the domestic lobby participates in the bargain ($A^h = 1, A^f = 0$), the agreed-upon policy maximizes $\alpha W^h(t) + \Pi^h(t)$ subject to $t \leq \bar{t}$. The cap is clearly binding, so the resulting policy is \bar{t} and the joint surplus is:

$$S_h = [\alpha W^h(\bar{t}) + \Pi^h(\bar{t})] - [\alpha W^h(t_d) + \Pi^h(t_d)].$$

The equilibrium payoffs for the lobbies in this subgame are therefore:

$$\begin{aligned} L^h &= \Pi^h(t_d) + S_h(\bar{t}) - \xi^h \\ L^f &= \Pi^f(\bar{t}) \end{aligned}$$

2. If both lobbies engage ($A^h = A^f = 1$), the agreed-upon policy maximizes $\alpha W^h(t) + \Pi^h(t) + \Pi^f(t)$ subject to $t \leq \bar{t}$. Since $\bar{t} < t_{hf}$ the policy cap is binding, thus the resulting policy is again \bar{t} . The joint surplus from the bargain in this case is:

$$S_{hf} = [\alpha W^h(\bar{t}) + \Pi^h(\bar{t}) + \Pi^f(\bar{t})] - [\alpha W^h(t_d) + \Pi^h(t_d) + \Pi^f(t_d)],$$

The equilibrium payoffs for the lobbies in this subgame are:

$$\begin{aligned} L^h &= \Pi^h(t_d) + \frac{1}{2}S_{hf}(\bar{t}) - \xi^h \\ L^f &= \Pi^f(t_d) + \frac{1}{2}S_{hf}(\bar{t}) - \xi^f \end{aligned}$$

3. If only the foreign lobby pays the access cost ($A^h = 0, A^f = 1$), the agreed-upon policy maximizes $\alpha W^h(t) + \Pi^f(t)$ subject to $t \leq \bar{t}$. Recall that the unconstrained optimum in this case is by definition $t_f \equiv \arg \max_t [\alpha W^h(t) + \Pi^f(t)]$, thus the agreed-upon policy is $\min\{\bar{t}, t_f\}$, and the joint surplus is:

$$S_f = [\alpha W^h(\min\{\bar{t}, t_f\}) + \Pi^f(\min\{\bar{t}, t_f\})] - [\alpha W^h(t_d) + \Pi^f(t_d)],$$

As a consequence, the equilibrium payoffs for the lobbies are:

$$\begin{aligned} L^h &= \Pi^h(\min\{\bar{t}, t_f\}) \\ L^f &= \Pi^f(t_d) + S_f - \xi^f \end{aligned}$$

4. If $A^h = A^f = 0$, there is no bargain and the policy outcome is t_d .

The payoff matrix is thus the following:

	$A^f = 0$	$A^f = 1$
$A^h = 0$	$\Pi^h(t_d), \Pi^f(t_d)$	$\Pi^h(\min\{\bar{t}, t_f\}), \Pi^f(t_d) + S_f - \xi^f$
$A^h = 1$	$\Pi^h(t_d) + S_h - \xi^h, \Pi^f(\bar{t})$	$\Pi^h(t_d) + \frac{1}{2}S_{hf} - \xi^h, \Pi^f(t_d) + \frac{1}{2}S_{hf} - \xi^f$

It is important to observe that the imposition of a policy cap changes the lobby participation game in two ways relative to the noncooperative scenario. First, it reduces the joint surplus for the government and the lobbies that choose to participate in the bargain, although it may not reduce it to zero. Second, it may change the disagreement policy: if $\bar{t} < t^w$, the disagreement policy is lowered from t^w to \bar{t} .

Next note that, if the policy cap becomes the new disagreement policy ($\bar{t} < t^w$), this wipes out the joint surplus available when the domestic lobby participates in the bargain. To see this recall from the analysis above that, if the domestic lobby is in the bargain, the cap is binding. This in turn implies that, if the policy cap is the disagreement policy, then $S_h = 0$. On the other hand, if the foreign lobby is the only one participating in the bargain, the joint surplus S_f may be positive.

With these observations in hand, I can now characterize the equilibrium of the full game and evaluate the anti-lobbying effects of the policy cap. We need to distinguish between two cases:

Case A: the policy cap does not affect the disagreement policy ($\bar{t} > t^w$).

In this case, the disagreement policy remains $t_d = t^w$ and the agreed-upon policy is $\min\{\bar{t}, t_f\} = t_f$, so the payoff matrix above is qualitatively similar as the one in the non-cooperative scenario, except that the joint surplus terms (S_f , S_h and S_{hf}) are uniformly lower. Also note that the joint surplus is strictly positive regardless of which lobbies participate. Thus, if the lobbying costs ξ^f and ξ^h are below some threshold levels, the unique equilibrium is for both lobbies to engage in rent-seeking. In this case, the use of a policy cap generates no anti-lobbying gains. More generally, the policy cap weakly reduces the number of active lobbies relative to the non-cooperative scenario. I can thus state:

Proposition 3. *Suppose $\bar{t} > t^w$, so that the policy cap does not affect the disagreement policy. Then the policy cap weakly reduces the equilibrium rent-seeking waste relative to the*

non-cooperative equilibrium, but it foregoes all anti-lobbying gains if ξ^f and ξ^h are below some threshold levels.

Case B: the policy cap becomes the new disagreement policy ($\bar{t} < t^w$).

Recall from the previous section that, when only the foreign lobby participates in the bargain, the policy level is pushed below the welfare-maximizing level ($t_f < t^w$). If the policy cap is so low that $\bar{t} < t_f$, then in all subgames the cap is binding and \bar{t} is the disagreement policy, so the joint surplus is zero in all subgames, and hence the unique equilibrium is $A^h = A^f = 0$. This is not a very interesting case: the policy cap is so low that the discretion it leaves is irrelevant, so it is equivalent to an exact policy commitment $t = \bar{t}$. I will thus ignore this case in what follows, and focus on the case $t_f < \bar{t} < t^w$.

If $t_f < \bar{t} < t^w$, the policy cap may have a surprising effect: if the rent-seeking costs ξ^f and ξ^h are sufficiently small, the policy cap kills any pure-strategy equilibrium of the rent-seeking game, and only a mixed-strategy equilibrium survives. To see this, suppose ξ^f and ξ^h are infinitesimally small. In this case, $A^h = A^f = 0$ cannot be an equilibrium, because the foreign lobby can profitably deviate and seek access. Also the outcome $A^h = 0, A^f = 1$ cannot be an equilibrium: given that the foreign lobby participates in the bargain and pushes t below the cap, the domestic lobby wants to enter the fray and prevent this from happening. Further, $A^h = 1, A^f = 1$ cannot be an equilibrium: if both lobbies are in the bargain the policy is at the cap, but the foreign lobby can profitably deviate by getting out of the fray, because it will save the rent-seeking cost and the policy will still be at the cap. Finally, $A^h = 1, A^f = 0$ cannot be an equilibrium: if only the domestic lobby is in the bargain, the policy is at the cap, and the foreign lobby will want to enter in order to push t down.

Intuitively, the simple reason for the non-existence of pure-strategy equilibria is the following: the foreign lobby has incentive to engage in rent-seeking only if the domestic lobby does not, because only in this case it can convince the government to lower the policy below the cap \bar{t} ; and the domestic lobby has incentive to participate only if the foreign lobby does too, because in this case it wants to prevent the policy from being lowered below \bar{t} . At a basic level, what kills pure-strategy equilibria is a key asymmetry: given the opposite policy interests of the two lobbies, the policy cap is binding for the domestic lobby but not for the foreign lobby.

In this case, there is only a mixed-strategy equilibrium in which each lobby pays the access

cost with some probability.¹⁵ In expectation, then, the policy cap will reduce the rent-seeking waste relative to the non-cooperative scenario, but will not eliminate it.

The following proposition summarizes:

Proposition 4. *Suppose $t_f < \bar{t} < t^w$, so that the policy cap becomes the disagreement policy (but is not so low that it is equivalent to an exact policy commitment). Then, if ξ^f and ξ^h are sufficiently small, there exists only a mixed strategy equilibrium of the rent-seeking game. In this case, the expected rent-seeking waste is lower than in the non-cooperative scenario, but strictly positive.*

It is worth noting that the result of Proposition 4 extends beyond the simple model I consider here, and applies more generally to the effect of a policy cap when there is countervailing lobbying. For example, it would apply also to a model of tariff-setting where there is no foreign lobbying but there is countervailing lobbying between final-good producers and intermediate-good producers about the tariff choice.

Before moving on, it is worth highlighting the contrast between the point I am making here and the point made by Maggi and Rodriguez-Clare (2007) regarding tariff caps. When applied to the case of tariff caps, the present model highlights a shortcoming of this type of rule, namely that it may invite wasteful ex-post lobbying. In contrast, Maggi and Rodriguez-Clare (2007) highlight an *advantage* of tariff caps: by inviting ex-post lobbying, a tariff cap in a given sector induces the lobby to pay monetary contributions to the government ex-post, thus reducing the net returns from investment in that sector, and hence reducing the ex-ante misallocation of resources. These results should be seen as complementary. Taken together, they suggest that policy discretion can have opposite effects on the resource misallocations caused by lobbying, depending on how it affects the lobbying activity: to the extent that it induces lobbies to make monetary payments to the government and hence lowers returns to lobbying, it is a good thing; to the extent that it induces lobbies to engage in wasteful activities, it is a bad thing. The relative importance of wasteful activities versus pure transfers in the lobbying process is a fascinating empirical question in its own right.

¹⁵It is a well-known result that a mixed-strategy Nash equilibrium always exists in a game of this type.

3. The anti-lobbying effects of non-discrimination rules

In this section I consider another salient type of international rule that is present in many existing international agreements: a non-discrimination rule. This is a rule that prohibits a country from discriminating across foreign partners. This kind of rule is meaningful in any policy area where policies are by nature bilateral, and therefore can be applied in discriminatory ways, for example trade policies, investment policies, product regulations or migration policies.

To examine the effects of nondiscrimination rules on equilibrium rent-seeking activities, I now modify the model and consider a simple three-country setting. I will argue that a simple non-discrimination rule can reduce or even eliminate the rent-seeking waste caused by foreign lobbying.

Consider a world comprised of the home country and two symmetric foreign countries. For each foreign country $k \in \{a, b\}$, the home government can choose a bilateral policy t^k . This could be for example a bilateral tariff, or a bilateral investment tax, or a bilateral immigration barrier. I define a non-discriminatory policy as one that satisfies $t^a = t^b \equiv t$.

The two foreign lobbies face the same access cost ξ^f . To simplify the analysis and focus sharply on the key points, I assume in this section that the domestic lobby has zero cost of access: $\xi^h = 0$. Under this assumption, it is a dominant strategy for the domestic lobby to participate in the bargain with the government, so I can take a shortcut and fix $A^h = 1$ throughout the analysis, and focus on the access decisions by the foreign lobbies.

I continue to assume that the bargaining power is shared evenly by the lobbies that participate in the bargain.

The home country's gross welfare function is now denoted $W^h(t^a, t^b)$, the gross profit function for the domestic lobby is $\Pi^h(t^a, t^b)$, and the gross profit function of foreign lobby k is $\Pi^k(t^k, t^{-k})$, where the index $-k$ indicates the foreign lobby other than k . Note that, given the assumed symmetry of foreign lobbies, $\Pi^a(t, t) = \Pi^b(t, t)$. With a slight abuse of notation, I will denote $\Pi(t, t)$ the foreign lobbies' common profit function given a symmetric policy t .

I assume that: (i) the domestic lobby's profit Π^h is increasing in each t^k ; (ii) foreign lobby k 's profit Π^k is decreasing in t^k and increasing in t^{-k} ; and (iii) a uniform increase in t hurts each foreign lobby: $\frac{d}{dt}\Pi(t, t) < 0$. As a concrete example, in a trade application where the policies t^k are tariffs, the domestic lobby is the group of import-competing producers and the foreign lobbies are the groups of foreign exporters, the meaning of these assumptions would be that

import-competing producers prefer higher tariffs on both foreign countries, exporters from each foreign country prefer a lower tariff on their own products but a higher tariff on exporters from the other country, and exporters from each country dislike uniform tariff increases.

I am now ready to launch into the analysis. I will first characterize the noncooperative equilibrium, and then examine the effects of a nondiscrimination (ND) rule that imposes the constraint $t^a = t^b \equiv t$ on the home country's policies.

3.1. Non-cooperative equilibrium

Let us examine the rent-seeking game in the noncooperative scenario. Given the assumption $\xi^h = 0$, so that we can set $A^h = 1$ throughout, we have a symmetric game between the two foreign lobbies. Let us proceed by backward induction and examine the four possible subgames.

In what follows, the subscripts of the policy t indicate the foreign lobbies that participate in the bargain, while the superscript of t indicates the foreign country that the policy applies to, and I use no superscript when the policy is non-discriminatory; thus, for example, t_a^b is the policy that applies to foreign country b when only foreign lobby a is in the bargain, t_{ab} is the symmetric policy that emerges when both lobbies are in the bargain, and so on.

Focus first on the subgame where both foreign lobbies are in the bargain ($A^a = 1, A^b = 1$).

Given that the foreign lobbies are symmetric, the agreed-upon policies are symmetric and given by

$$t_{ab} = \arg \max_t \Omega_{ab}(t, t),$$

where $\Omega_{ab}(t, t) \equiv \alpha W^h(t, t) + \Pi^h(t, t) + 2\Pi(t, t)$ is the joint payoff of the government and all the lobbies.

Noting that the disagreement policy is the (symmetric) unilateral welfare-maximizing policy, which I denote t^w , the joint surplus for the bargainers can be written as:

$$S_{ab} = \Omega_{ab}(t_{ab}, t_{ab}) - \Omega_{ab}(t^w, t^w),$$

The equilibrium payoffs for the foreign lobbies in this subgame are therefore:

$$L^a = L^b = \Pi(t^w, t^w) + \frac{1}{3}S_{ab} - \xi^f$$

Next focus on the subgame where only foreign country a participates in the bargain ($A^a = 1, A^b = 0$). Note that, since foreign lobbies are symmetric, the subgame ($A^a = 0, A^b = 1$) will be analogous.

The agreed-upon policies in this case are

$$(t_a^a, t_a^b) = \arg \max_{t^a, t^b} \Omega_a(t^a, t^b),$$

where $\Omega_a(t^a, t^b) \equiv \alpha W^h(t^a, t^b) + \Pi^h(t^a, t^b) + \Pi^a(t^a, t^b)$ is the joint payoff of the bargainers.

Now the joint surplus is

$$S_a = \Omega_a(t_a^a, t_a^b) - \Omega_a(t^w, t^w),$$

and the equilibrium payoffs for the foreign lobbies are:

$$\begin{aligned} L^a &= \Pi(t^w, t^w) + \frac{1}{2}S_a - \xi^f \\ L^b &= \Pi^b(t_a^a, t_a^b). \end{aligned}$$

Finally focus on the subgame in which no foreign lobby participates in the bargain ($A^a = 0, A^b = 0$).

The agreed-upon policy in this case is symmetric and given by:

$$t_0 = \arg \max_t \Omega_0(t, t),$$

where $\Omega_0(t, t) \equiv \alpha W^h(t, t) + \Pi^h(t, t)$ is the joint payoff of the government and the domestic lobby.

The equilibrium payoffs for the foreign lobbies in this subgame are:

$$L^a = L^b = \Pi(t_0, t_0)$$

Having derived the subgame equilibrium payoffs for the foreign lobbies, I can now move backwards and examine their equilibrium access decisions.

The first question is: under what conditions is it an equilibrium for both foreign lobbies to access the bargain ($A^a = 1, A^b = 1$)?

This requires that a foreign lobby have no incentive to deviate and step out given that the other foreign lobby participates in the bargain. I will write down this condition only for lobby a , since the condition for foreign lobby b is equivalent (given symmetry):

$$\xi^f < \Pi(t^w, t^w) + \frac{1}{3}S_{ab} - \Pi^a(t_b^a, t_b^b) \equiv \hat{\xi}^f.$$

Intuitively, this no-stepping-out condition is satisfied if the access cost ξ^f is sufficiently low.

The next question is: under what conditions is it an equilibrium for a single foreign lobby to access the bargain? Let us consider the possible equilibrium ($A^a = 1, A^b = 0$); by symmetry, the condition for ($A^a = 0, A^b = 1$) to be an equilibrium is equivalent.

This requires that (i) lobby b have no incentive to step in, which in turn requires: $\Pi^b(t_a^b, t_a^a) > \Pi(t^w, t^w) + \frac{1}{3}S_{ab} - \xi^f$, and (ii) lobby a have no incentive to step out, which in turn requires: $\Pi(t^w, t^w) + \frac{1}{2}S_a - \xi^f > \Pi(t_0, t_0)$. It is then direct to verify that the condition for ($A^a = 1, A^b = 0$) to be an equilibrium is:

$$\hat{\xi}^f < \xi^f < \bar{\xi}^f, \quad (3.1)$$

where $\bar{\xi}^f \equiv \Pi(t^w, t^w) + \frac{1}{2}S_a - \Pi(t_0, t_0)$ and $\hat{\xi}^f$ has been defined above (note that $\Pi^a(t_b^a, t_b^b) = \Pi^b(t_a^b, t_a^a)$ by symmetry). Intuitively, the equilibrium can entail rent-seeking by a single foreign lobby only if the access cost lies in some intermediate range, because if the access cost is very low both lobbies will want to step in, and if the access cost is very high neither lobby will want to do it. Note that the interval $(\hat{\xi}^f, \bar{\xi}^f)$ may be empty, which is the case if $\frac{1}{2}S_a - \frac{1}{3}S_{ab} < \Pi(t_0, t_0) - \Pi^b(t_a^a, t_a^b)$.

Finally, under what conditions is it an equilibrium for both foreign lobbies to stay out ($A^a = 0, A^b = 0$)? Clearly this is the case if

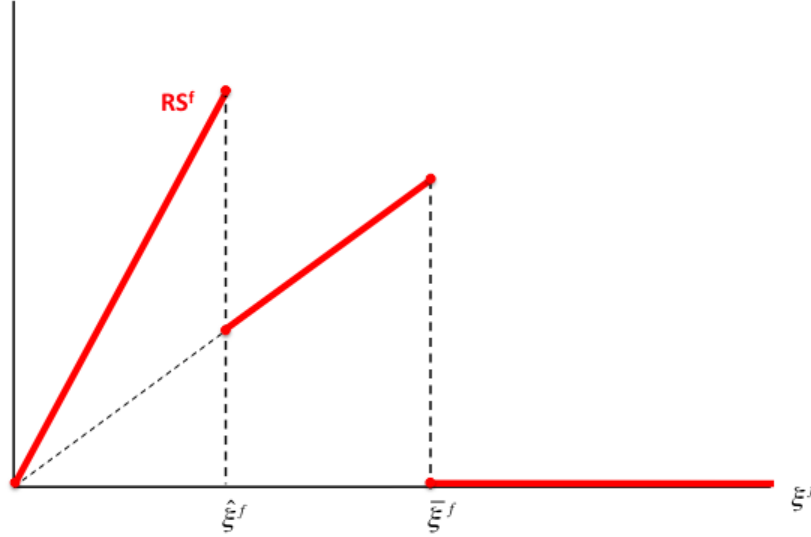
$$\xi^f > \Pi(t^w, t^w) + \frac{1}{2}S_a - \Pi(t_0, t_0) \equiv \bar{\xi}^f$$

Notice that the equilibrium number of foreign lobbies that participate in the bargain is unique, and in particular, it is equal to two if $\xi^f < \hat{\xi}^f$, one if $\hat{\xi}^f < \xi^f < \bar{\xi}^f$, and zero if $\xi^f > \bar{\xi}^f$. Thus the total rent-seeking waste in equilibrium, which I denote RS^f , is given by

$$RS^f = \begin{cases} 2\xi^f & \text{if } \xi^f < \hat{\xi}^f \\ \xi^f & \text{if } \hat{\xi}^f < \xi^f < \bar{\xi}^f \\ 0 & \text{if } \xi^f > \bar{\xi}^f \end{cases}$$

Also note that the equilibrium rent-seeking waste is non-monotonic in ξ^f : it is initially increasing; then it jumps down when ξ^f crosses the first threshold $\hat{\xi}^f$, because the number of active foreign lobbies drops from two to one; then it starts increasing again; and finally it jumps down to zero as ξ^f crosses the second threshold $\bar{\xi}^f$, because the number of active lobbies drops to zero. (Again, notice that the interval $(\hat{\xi}^f, \bar{\xi}^f)$ may be empty.) Figure 1 illustrates.

Figure 1



3.2. Impact of the non-discrimination rule

Let us now revisit the rent-seeking game under the ND rule, which imposes the constraint $t^a = t^b$.

First note that, in the absence of lobbying the ND rule is not binding, because the foreign countries are symmetric, so the unilateral welfare-maximizing policy is symmetric: $t^a = t^b = t^w$. Therefore the ND rule does not change the disagreement policy. However, the ND rule will impose a binding constraint on the bargain when only one foreign lobby participates.

Consider first the subgame where both foreign lobbies participate in the bargain ($A^a = A^b = 1$). In this case the ND rule is not binding, given symmetry between the foreign lobbies, so the outcome is exactly the same as in the absence of the ND rule: the agreed-upon symmetric policy is t_{ab} , the joint surplus is S_{ab} and the equilibrium payoffs for the foreign lobbies are $L^a = L^b = \Pi(t^w, t^w) + \frac{1}{3}S_{ab} - \xi^f$.

Next consider the subgame where only foreign lobby a participates ($A^a = 1, A^b = 0$). Since foreign lobbies are symmetric, the subgame ($A^a = 0, A^b = 1$) will be analogous.

The agreed-upon (nondiscriminatory) policy in this case is:

$$t_a^{ND} = \arg \max_t \Omega_a(t, t)$$

where $\Omega_a(t, t) \equiv aW^h(t, t) + \Pi^h(t, t) + \Pi^a(t, t)$ is the joint payoff of the parties at the bargaining table; this is the same as in the absence of the ND rule except that the policy is constrained to be nondiscriminatory. The joint surplus in this case is

$$S_a^{ND} = \Omega_a(t_a^{ND}, t_a^{ND}) - \Omega_a(t^w, t^w)$$

and the equilibrium payoffs for the foreign lobbies are:

$$\begin{aligned} L^a &= \Pi^a(t^w, t^w) + \frac{1}{2}S_a^{ND} - \xi^f \\ L^b &= \Pi^b(t_a^{ND}, t_a^{ND}). \end{aligned}$$

Finally consider the subgame where neither foreign lobby participates in the bargain ($A^a = 0, A^b = 0$). Clearly the outcome of this bargain is not affected by the ND rule, so the agreed-upon policy is t_0 and the equilibrium payoffs for the foreign lobbies are $L^a = L^b = \Pi(t_0, t_0)$.

With the subgame equilibrium payoffs in hand, I can now move backwards and examine the equilibrium access decisions of the foreign lobbies under the ND rule.

As above, let us start by asking under what conditions it is an equilibrium for both foreign lobbies to access the bargain ($A^a = 1, A^b = 1$). This requires that a foreign lobby have no incentive to deviate and exit the bargain, which in turn requires:

$$\xi^f < \Pi(t^w, t^w) + \frac{1}{3}S_{ab} - \Pi^b(t_a^{ND}, t_a^{ND}) \equiv \hat{\xi}_{ND}^f$$

Next, when is it an equilibrium for lobby a to participate and lobby b to stay out ($A^a = 1, A^b = 0$)? This is the case if: (i) lobby b has no incentive to step in, which requires: $\Pi^b(t_a^{ND}, t_a^{ND}) > \Pi(t^w, t^w) + \frac{1}{3}S_{ab} - \xi^f$, and (ii) lobby a has no incentive to step out, which requires: $\Pi(t^w, t^w) + \frac{1}{2}S_a^{ND} - \xi^f > \Pi(t_0, t_0)$. Thus the condition for ($A^a = 1, A^b = 0$) to be an equilibrium, and by symmetry also for ($A^a = 0, A^b = 1$) to be an equilibrium, is

$$\hat{\xi}_{ND}^f \equiv \Pi(t^w, t^w) + \frac{1}{3}S_{ab} - \Pi^b(t_a^{ND}, t_a^{ND}) < \xi^f < \Pi(t^w, t^w) + \frac{1}{2}S_a^{ND} - \Pi(t_0, t_0) \equiv \bar{\xi}_{ND}^f$$

Note that the interval $(\hat{\xi}_{ND}^f, \bar{\xi}_{ND}^f)$ may be empty, which is the case if $\frac{1}{2}S_a^{ND} - \frac{1}{3}S_{ab} < \Pi(t_0, t_0) - \Pi^b(t_a^{ND}, t_a^{ND})$.

Finally, the condition for $(A^a = 0, A^b = 0)$ to be an equilibrium is

$$\xi^f > \Pi(t^w, t^w) + \frac{1}{2}S_a^{ND} - \Pi(t^h, t^h) \equiv \bar{\xi}_{ND}^f$$

Note that, just as in the noncooperative scenario, number of foreign lobbies that engage in rent-seeking in equilibrium is unique: it is equal to two if $\xi^f < \hat{\xi}_{ND}^f$, one if $\hat{\xi}_{ND}^f < \xi^f < \bar{\xi}_{ND}^f$, and zero if $\xi^f > \bar{\xi}_{ND}^f$. Thus the equilibrium rent-seeking waste under the ND rule is:

$$RS_{ND}^f = \begin{cases} 2\xi^f & \text{if } \xi^f < \hat{\xi}_{ND}^f \\ \xi^f & \text{if } \hat{\xi}_{ND}^f < \xi^f < \bar{\xi}_{ND}^f \\ 0 & \text{if } \xi^f > \bar{\xi}_{ND}^f \end{cases}$$

Next I argue that imposing the ND rule decreases both access-cost thresholds relative to the non-cooperative equilibrium ($\hat{\xi}_{ND}^f < \hat{\xi}^f$ and $\bar{\xi}_{ND}^f < \bar{\xi}^f$), thus it reduces (weakly) the number of foreign lobbies that engage in rent-seeking.

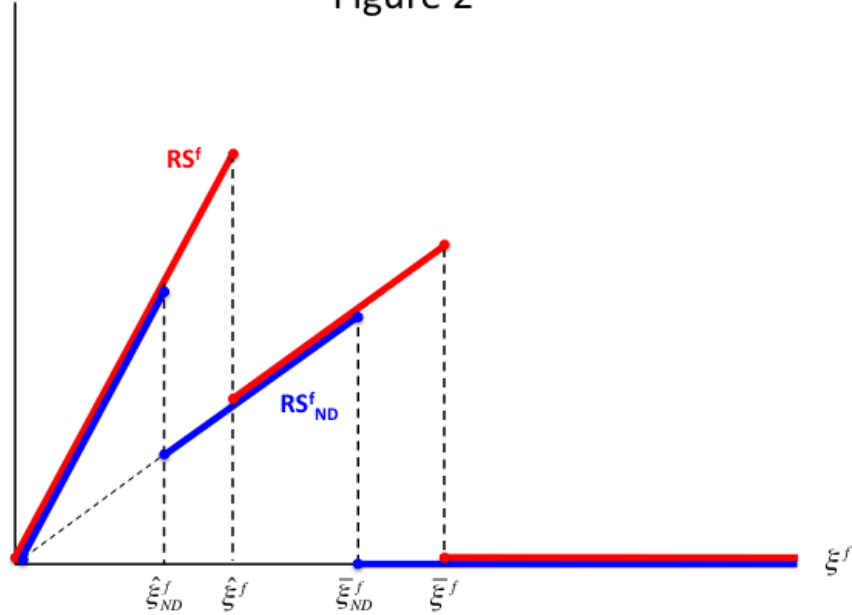
This follows from two observations. First, it can be shown that $\Pi^b(t_a^{ND}, t_a^{ND}) > \Pi^b(t_a^a, t_a^a)$: in words, the ND rule increases the payoff of a foreign lobby that stays out when the other foreign lobby participates.¹⁶ This implies immediately that $\hat{\xi}_{ND}^f < \hat{\xi}^f$. And second, note that $S_a^{ND} < S_a$, because imposing the ND constraint lowers the available surplus when only one foreign lobby is in the bargain, and hence $\bar{\xi}_{ND}^f < \bar{\xi}^f$.

We can conclude that the ND rule weakly reduces the number of foreign lobbies that incur the access cost, and hence the total rent-seeking waste, for any given ξ^f . Furthermore, the reduction in the waste is strict for a range of ξ^f . Figure 2 visualizes this point, by contrasting the $RS_{ND}^f(\xi^f)$ function with the $RS^f(\xi^f)$ function. The figure focuses on the case in which $\hat{\xi}^f < \bar{\xi}_{ND}^f$, but it is also possible that $\hat{\xi}^f > \bar{\xi}_{ND}^f$, in which case imposing the ND rule may cause the number of active foreign lobbies to drop from two to zero.

Another way to describe the impact of the ND rule on the equilibrium rent-seeking waste is to think of ξ^f as a parameter that is ex-ante uncertain. In this case it is straightforward to show that, for any ex-ante distribution of ξ^f , imposing the ND rule decreases the equilibrium rent-seeking waste RS^f in a first-order stochastic sense. I can thus state:

¹⁶To see this, note that in the absence of the ND rule, if only lobby a participates the agreed-upon policies maximize $\alpha W^h(t_a, t_b) + \Pi^h(t_a, t_b) + \Pi^1(t_a, t_b)$. Clearly, this leads to $t_a^a < t_a^b$. In the presence of the ND rule, the agreed-upon tariffs maximize the same objective, but under the constraint $t_a = t_b$. Given that the objective function is concave in t_a and t_b , imposing the equality constraint leads to a higher t_a and a lower t_b , and as a consequence Π^b increases.

Figure 2



Proposition 5. *Relative to the non-cooperative equilibrium, imposing the ND rule weakly reduces the number of foreign lobbies that engage in rent-seeking in equilibrium for any ξ^f , and the reduction is strict for a range of ξ^f . Thus, for any ex-ante distribution of ξ^f , imposing the ND rule decreases the equilibrium rent-seeking waste in a first-order stochastic sense.*

The broad intuition for this result is that the ND rule injects a free-rider problem in the strategic interaction between the foreign lobbies, and more specifically, it modifies the rent-seeking game in two ways: first, it increases the payoff of a lobby that stays out of the fray when the other one engages in rent-seeking, and this increases the incentive to deviate from an equilibrium where both foreign lobbies participate in the bargain; and second, it reduces the available surplus when only one foreign lobby is in the bargain, and this decreases the incentive of that lobby to stay in the bargain.¹⁷

¹⁷The logic of this result is reminiscent of the well-known free-rider problem in trade negotiations caused by the MFN rule, but there are some differences. First, in the present context free-riding occurs in the process of ex-post lobbying, not in the process of negotiating the international agreement, so free-riding is not necessarily a “problem”. Second, the nature of the free-riding issue is somewhat different. The free-riding issue caused by the MFN rule in trade negotiations occurs because a country that participates in the bargain must make trade

The final observation is that, while imposing the ND rule reduces wasteful rent-seeking, there is no guarantee that it increases global welfare, and the reason is that it may worsen the policy outcome relative to the non-cooperative scenario. This is because, as argued in section 2.2, foreign lobbying tends to push non-cooperative policies closer to their efficient levels. Thus, to the extent that the ND rule induces one or both of the foreign lobbies to disengage, it may lead to a worse policy outcome.

To make this point clear, consider the case in which the ND rule leads to a drop in the number of active foreign lobbies from two to zero. In this case, under the ND rule the policy is symmetric and maximizes $aW^h + \Pi^h$. This policy is higher than the global-welfare-maximizing level, because (i) the government does not take into account the negative international externality from the policy on W^a and W^b , and (ii) the domestic lobby pushes for a higher level of t . In the absence of the ND rule, on the other hand, both foreign lobbies are active, so the policy is symmetric and maximizes $aW^h + \Pi^h + \Pi^a + \Pi^b$. Since foreign profits ($\Pi^a + \Pi^b$) are decreasing in t , it follows that removing the ND rule pushes down the level of t , and hence increases global welfare, provided the reduction in t does not go too far.

The above observation points to an interesting tradeoff between the anti-foreign-lobbying effects of an ND rule and its possible adverse effects on the equilibrium policy level. It is worth highlighting, however, that the beneficial effect of foreign lobbying on the policy outcome depends on the assumption that Home's policy affects foreign lobbies and foreign welfare in the same direction. But it is not hard to think of policy domains where this is not the case. For example, a tax on direct investment from a foreign country may hurt producer lobbies in that country, but it may increase welfare in that country by inducing those producers to invest more locally (if for example there are local agglomeration externalities).

4. Conclusion

In this paper I have argued that an important potential benefit of international agreements is to reduce wasteful rent-seeking activities through a reduction in policy discretion. This suggests that in future work attempting to quantify the gains from international agreements, it would be desirable to take their anti-lobbying effects into account. In the area of international

concessions, while a country that stays out does not. Here the lobby that participates in the bargain may get a *higher* payoff than the lobby that stays out: to see this, suppose $t_a^{ND} > t^w$; then the participating lobby gets a side transfer for accepting an increase in t relative to the disagreement policy t^w , so it gets a higher payoff than the non-participating lobby.

trade, for example, this could conceivably lead to larger estimates of the gains from trade liberalization than the relatively small numbers that the literature has found so far (see e.g. Arkolakis, Costinot and Rodriguez-Clare, 2012). And while my theory applies in a natural way to trade agreements, its logic is more general and applies to a variety of domains of international cooperation.

To examine the anti-lobbying effects of international agreements, I developed a simple model in which domestic and foreign interest groups can influence policy decisions by incurring real resource costs. Another key ingredient of the model is that domestic and foreign groups have opposite policy interests, thus giving rise to countervailing lobbying. One of the reasons the distinction between domestic and foreign lobbying is important is that the potential for foreign lobbying generates an international externality which is distinct from the standard “direct” international policy externalities: by inviting wasteful rent-seeking by foreign lobbies, the presence of policy discretion itself generates a negative international externality. This in turn suggests that achieving the anti-foreign-lobbying gains requires an international agreement, since the domestic government does not fully internalize the gains from reducing policy discretion. This contrasts with the anti-domestic-lobbying gains, which can in principle be realized by a unilateral commitment.

I focused on three salient types of international rules: exact policy commitments, policy bounds and non-discrimination rules. An exact policy commitment is a natural benchmark and has straightforward implications: since it completely removes policy discretion, this type of rule shuts down ex-post lobbying and hence eliminates all rent-seeking waste. Policy bounds have more subtle effects, because they may invite ex-post lobbying and therefore may forego part or all of the potential anti-lobbying gains. An interesting implication of policy bounds is that they may lead to mixed-strategy equilibria of the rent-seeking game. I then examined non-discrimination rules in the context of a three-country extension of the model, and argued that this type of rule can reduce rent-seeking by foreign lobbies, by injecting a free-rider problem in the strategic interaction between these lobbies. Under some conditions a simple non-discrimination rule can achieve all the potential anti-foreign-lobbying gains from an international agreement.

The model presented above is just a first step toward a more complete theory of the anti-lobbying effects of international agreements. One important limitation of the model is that international rules are taken as exogenous. While this approach is useful to examine the impacts

of various types of international rules on equilibrium rent-seeking activities, it leaves open some important questions. First, to what extent do governments have incentives to commit to international rules in the first place? One issue, for example, is that governments may not want to give up much discretion ex-ante if they can use such discretion to extract rents from lobbies ex-post (for example in the form of contributions). Second, to the extent that governments do have incentives to make ex-ante commitments, could they do so through unilateral commitments (e.g. constitutional rules), or would an international agreement be needed? And in the latter case, what specific rules will the agreement specify?

Furthermore, a meaningful analysis of the endogenous design of international rules would need to consider also the *benefits* of policy discretion, which I have not considered in the basic model above. For example, the model stacks the deck in favor of exact policy commitments and against policy bounds, since it abstracts from the flexibility advantages that policy bounds may have in the presence of uncertainty (Horn, Maggi and Staiger, 2010; Mueller, 2019).

There is another question that arises when considering the endogenous determination of international rules: lobbies may engage in rent-seeking not only to influence ex-post policy choices, but also to influence the ex-ante agreement. Is it possible that such ex-ante rent seeking activities might offset the anti-lobbying gains that I highlighted above? It would be interesting to examine this question formally, but at the intuitive level I would argue that, while some wasteful rent-seeking should be expected at the agreement negotiation stage, the magnitude of ex-post rent-seeking waste is likely to be higher, because ex-ante lobbying occurs once and for all, while ex-post lobbying occurs repeatedly over a long period of time after the agreement is signed. In other words, the ex-post rent-seeking costs in my model should be interpreted as the present discounted value of rent-seeking costs over a potentially long period of time. If one is willing to assume that the ex-post rent-seeking waste is larger than the ex-ante rent-seeking waste, the net anti-lobbying gains from an agreement will still be positive.

As I already mentioned, the model can be applied to a variety of policy areas, but additional insights could be gained by imposing more structure and focusing on a specific policy area. Consider for example the case of international trade agreements. In a trade application of the model, one could allow for a broader set of policy instruments beyond tariffs, such as export instruments and production subsidies. In this case a tariff agreement may have limited success in reducing rent-seeking waste, because special interest groups may focus their lobbying efforts on policies that are not covered by the agreement, thus a question that arises is: how comprehensive

does an international agreement have to be in order to realize significant anti-lobbying gains?

Finally, extending the model to allow for heterogeneous firms and firm-level lobbying would open it up to further fascinating questions. For example, suppose that engaging in rent-seeking makes a firm less productive, because the firm diverts resources away from investment and innovative activities. Then rent-seeking activities would affect trade not only indirectly, as they lead to more import protection, but would also have a direct negative impact on a firm's export performance. And as a consequence, a trade agreement would affect the volume of trade not only through the traditional channel of lowering trade barriers, but also through a new channel, because reducing rent-seeking would lead to higher firm productivity.

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