Endogenous Politics and the Design of Trade Agreements

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Abstract

Political pressure is undoubtedly an important influence in the setting of trade policy and the formulation of trade agreements. Most of the literature models the political pressure that governments face as resulting from an exogenous, stochastic process. This paper shows that when political pressure arises endogenously, important results can be overturned and new insights into the motivation for features of the trade agreements we observe and rules of organizations such as the WTO come to light. Using a weighted Baldwin-style government objective function, I show that governments may want to use tariff caps both both to force special interest groups to continue lobbying after a trade agreement is signed and to reduce the magnitude of that lobbying effort. Endogenous politics can destroy an escape clause's ability to provide flexibility in times of large negative political shocks when lobbies use the flexibility to seek rents. This can explain why use of WTO Safeguards are conditioned on measurable economic indicators as well as why Safeguard levels of protection are not regulated.

1 Introduction

Much of the work on the political economy of trade agreements focuses on questions of the optimal design of trade agreements, trade agreement negotiations, and trade dispute settlement that arise in the presence of asymmetric information about shocks to an exogenous political economy parameter.

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One of the basic ideas that emerges from this literature is that, in the presence of asymmetric information about the strength of the ex-post political economy shocks, it is often advantageous to grant governments a period of relief from trade commitments. That is, one would rather allow a short period of "escape" from the agreement rather than have the agreement abandoned forever because domestic political opposition is temporarily too strong to be resisted.

Various trade agreement and institutional design features have been proposed in the literature that can help to make an escape clause work, since it is not incentive compatible to allow governments to take advantage of an escape clause whenever they wish. If some cost can be associated with the use of the escape clause or a dispute settlement body (DSB) can procure a signal about the strength of γ, it is often advantageous to grant this period of relief from trade commitments if the signal is strong enough.

This is an intuitively appealing story, but the logic can break down in the presence of endogenous political pressure. An escape clause allows a government to apply a higher tariff barrier when it experiences intense political pressure. But if a government gets a free pass from the WTO whenever it feels sufficient political pressure from domestic interest groups, those interest groups have a strong incentive to exert the required level of pressure.

I employ a model that closely follows Bagwell and Staiger (2005), adding an endogenously-determined element to their exogenously-determined political economy weights. I show that this can explain why the conditions for invoking the escape clause are purely observable economic variables, and why the level of protection governments can choose when invoking the escape clause is not restricted.

I explore the impacts the elevated levels of political pressure that an escape clause might encourage on governments' political welfare. To do this, I compare welfare under the standard Baldwin-style government welfare function and a similar, weighted version. The slight modification to the government objective function demonstrates that governments may want to use trade agreements to reduce lobbying. Thus, examining this alternative welfare function in combination with endogenous lobbying can provide a bridge between the theoretical literature and the claims of trade policy practitioners that an important role of trade agreements is to rein in protectionist pressure.

In a generalization of the Maggi and Rodriguez-Clare (2007) result, I show that one of the uses of tariff caps is to incentivize the lobby to engage in the political process after the trade agreement is in

place. The lobby loses all incentive to exert effort under a strong binding and so a government who prefers some level of political engagement from the lobby will not use a strong binding. This, perhaps, provides an explanation for the ubiquity of tariff caps. Combined with the idea that governments can use tariff caps to restrain endogenous political pressure, a story emerges in which governments employ trade agreements to carefully manipulate lobbying incentives in order to maximize their political objectives.

A rich literature has been developed to address questions concerning the design and enforcement of trade agreements. Repeated non-cooperative game models of trade agreements have been considered by McMillan (1986, 1989), Dixit (1987), Bagwell and Staiger (1990, 1997a,b, 2002), Kovenock and Thursby (1992), Maggi (1999), Ederington (2001), Rosendorff (2005), Bagwell (2009), and Park (2011).

Maggi and Staiger have a series of papers that employ an exogenous political economy force to study questions about the design of trade agreements and trade dispute settlement. Maggi and Staiger (2014) study the conditions under which property versus liability rules will be optimal when renegotiation of agreements is possible. They find that when property rules are optimal, agreements are never renegotiated; only liability rules are renegotiated in equilibrium, and when this renegotiation occurs, it always results in trade liberalization. Maggi and Staiger (2013) builds on this work to answer questions about when governments will settle disputes and how this relates to the contracting environment. Maggi and Staiger (2011) has a more sophisticated set-up for the exogenous shock that allows the authors to speak to issues of the role of the dispute settlement body as interpreter and completer of incomplete contracts.

Beshkar (2010a) shows that when one assumes that utility is not transferable between countries as has become common in the literature, the optimal mechanism involves less-than-proportional retaliation against parties who have defected from the agreement. Beshkar (2010b) compares the GATT escape clause to the WTO Safeguards agreement and shows that the DSB as a non-binding arbitrator can assist governments in self-enforcing their trade agreements. Martin and Vergote (2008) demonstrate that future punishment provides for higher welfare than contemporaneous punishment when governments are sufficiently patient. Indeed, they show that retaliation is a necessary feature of any efficient equilibrium in this environment. Hungerford (1991) and Riezman (1991) also consider the impact of different assumptions about reactions and timing of punishments for deviations from

agreements.

This work is also related to the literature on the endogenous political economy of trade. The foundational work is Grossman and Helpman (1994); the insights are applied to trade agreements in Grossman and Helpman (1995). Maggi and Rodríguez-Clare (2007) advanced the literature by demonstrating that there is a domestic commitment role for trade agreements. Buzard (2014) features a repeated-game model similar in spirit to the model under consideration here but focusing on questions of optimal punishments when the government has a separation-of-powers structure.

In the next section, I present the model and some preliminary results. Section 3 contains the analysis of rigid tariffs while Section 4 explores trade agreements with escape clauses. The political welfare function of the government is examined in depth in Section 5 before returning to examine the escape clause in an environment with both endogenous and exogenous political pressure in Section 6. Section 7 concludes.

2 The Model

I employ a two good partial equilibrium model with two countries: home (no asterisk) and foreign (asterisk). The countries trade two goods, X and Y, where P_i denotes the home price of good $i \in \{X, Y\}$ and P_i^* denotes the foreign price of good i.

The fundamentals here are chosen to match those of Bagwell and Staiger (2001, 2005). Home country demand, supply and profits are given by $D(P_i) = 1 - P_i$, $Q_X(P_X) = \frac{P_X}{2}$, $Q_Y(P_Y) = P_Y$, $\Pi_X(P_X) = \frac{(P_X)^2}{4}$, and $\Pi_Y(P_Y) = \frac{(P_Y)^2}{2}$. Foreign is taken to be symmetric.

This implies Home-country imports of X and exports of Y of $M_X(P_X) = 1 - \frac{3}{2}P_X$ and $E_Y(P_Y) = 2P_Y - 1$, with foreign imports of Y and exports of X given by $M_Y^*(P_Y^*) = 1 - \frac{3}{2}P_Y^*$ and $E_X(P_X^*) = 2P_X^* - 1$. With the only trade policy instruments being tariffs on import-competing goods, world prices are $P_X = P_X^W + \tau$, $P_X^* = P_X^W$, $P_Y^* = P_Y^W + \tau^*$, and $P_Y = P_Y^W$. Market clearing implies that world and home prices of X are $P_X^W = \frac{4-3\tau}{7}$ and $P_X = \frac{4+4\tau}{7}$, symmetric for Y.

As is standard in the literature, it is assumed that the production of each good requires the possession of a sector-specific factor that is available in inelastic supply and is non-tradable so that the income of owners of the specific factor is tied to the price of the good in whose production their factor is used.

Note that P_X^W and P_Y^W are decreasing in τ and τ^* respectively, while P_X and P_Y^* are increasing in the respective importing country's tariff. As profits and producer surplus (identical in this model) in a sector are increasing in the price of its good, profits in the import-competing sector are also increasing in the domestic tariff. This economic fact, combined with the assumptions on specific factor ownership, is what motivates political activity.

I next describe the politically-relevant actors, which are a government and import-competing lobby in each country. In order to focus attention on protectionist political forces, I assume that only the import-competing industry in each country is politically-organized and able to lobby and that it is represented by a single lobbying organization.[1] Each country's government can set trade policy either unilaterally or through a negotiated trade agreement and then choose an applied tariff that is potentially different from that agreed upon in a trade negotiation.

The stage-game timing is as follows. First, the governments cooperatively form a trade agreement.[2] After the trade agreement is concluded, the special interest group representing the import-competing industry in each country lobbies the government for protection in the form of tariffs and any exogenous shock is realized. Finally, given the trade agreement, enforcement conditions, and political pressure it experiences, each government chooses the applied tariff level for its import-competing good.

As this game is solved by backward induction, it is intuitive to start by describing the incentives of the government in setting the applied tariff in the final stage. As the economy is fully separable and the economic and political structures are symmetric, I focus here on the home country and the X-sector. The details are analogous for Y and foreign.

The per-period welfare function of the home government is given by

$$W(\gamma(s,e),\tau,\tau^*) = CS_X(\tau) + \gamma(s,e)\cdot\pi_X(\tau) + CS_Y(\tau^*) + \pi_Y(\tau^*) + TR(\tau) \tag{1}$$

where CS is consumer surplus, π represents profits, $\gamma(s,e)$ is the weight placed on profits (producer surplus) in the import-competing industry, s is an exogenous state variable, e is lobbying effort, and TR is tariff revenue. Here, the weight the government places on the profits of the import-competing industry, $\gamma(s,e)$, is affected both by a shock (à la Maggi and Staiger (2011)) and by the level of

[1] Adding a pro-trade lobby for the exporting industry would serve to strengthen some results.

[2] See Section 3 for a discussion of why lobbies are assumed not to be involved at the trade agreement formation stage.

lobbying effort.[3]

Assumption 1. *$\gamma(s,e)$ is continuously differentiable, strictly increasing and concave in e.*

Assumption 1 formalizes the intuition that the government favors the import-competing industry more the higher is its lobbying effort, but that there are diminishing returns to lobbying activity.

Given the government's preferences, the home lobby chooses its lobbying effort e to maximize profits net of lobbying effort:

$$U_{\mathrm{L}} = \pi(\tau(\gamma(e))) - e \tag{2}$$

where $\pi(\cdot)$ is the current-period profit and τ is the home country's tariff on the import good.

I assume the lobby's contribution is not observable to the foreign government. The implication is that the lobby can directly influence only the home government, and so the influence of one country's lobby on the other country's government occurs only through the tariffs selected.[4]

In the first stage, the governments choose the trade agreement tariffs via a negotiating process that I assume to be efficient. This process therefore maximizes the joint payoffs produced by the trade agreement:

$$W(\gamma(s,e),\gamma^*(s^*,e^*),\tau,\tau^*) = W(\gamma(s,e),\tau,\tau^*) + W^*(\gamma^*(s^*,e^*),\tau,\tau^*) \tag{3}$$

Note that in this symmetric environment, this is the Nash bargaining solution where the disagreement point is the welfare resulting from the Nash equilibrium in the non-cooperative game.

2.1 Nash Tariffs and Internationally Efficient Tariffs

The home government's welfare is $W(\gamma(s,e),\tau,\tau^*) = W_X(\gamma(s,e),\tau) + W_Y(\tau^*)$, where

$$W_X(\gamma(s,e),\tau) = \frac{9}{98} - \frac{5}{49}\tau - \frac{34}{49}\tau^2 + \frac{1}{98}\gamma(s,e)\left[8 + 16\tau + 8\tau^2\right]$$

$$W_Y(\tau^*) = \frac{25}{98} - \frac{3}{49}\tau^* + \frac{9}{49}(\tau^*)^2$$

[3]The standard 'Protection for Sale' modeling of Grossman and Helpman (1994) would specify $W = C + aW$, this form allows the incorporation of endogenous political pressure into the government objective function that is most often used to examine questions concerning the design of international trade agreements and the institutions that facilitate them. An isomorphism can be made between the two forms as discussed in Buzard (2013).

[4]cfr. Grossman and Helpman (1995), page 685.

$W_X(\gamma(s,e),\tau)$ is the utility derived from consumer surplus, producer surplus and tariff revenues in the import-competing industry and $W_Y(\tau^*)$ is the utility derived from consumer and producer surplus in the exporting industry.

When setting the tariff unilaterally, the government simply maximizes $W(\gamma(s,e),\tau,\tau^*)$ by choice of τ given $\gamma(s,e)$ and τ^*. As there are no interactions between τ and τ^*, the government simply maximizes $W_X(\gamma,(s,e),\tau)$ and sets the non-cooperative tariff

$$\tau^N(\gamma(s,e)) = \frac{8\gamma(s,e)-5}{68-8\gamma(s,e)}. \tag{4}$$

I refer to this as the Nash tariff because it is the result of Nash equilibrium in the non-cooperative game between the governments. τ^N is increasing in γ and the second order condition is satisfied for all values of $\gamma < 17/2$. Because $\gamma = 7/4$ is enough to achieve the prohibitive tariff of $1/6$ it seems reasonable to assume that this condition will be satisfied in equilibrium.

In order to derive the jointly efficient tariff choice—that is, the tariff that maximizes the joint welfare of the home and foreign government, we require the welfare of the foreign government, $W^*(\gamma^*(s^*,e^*),\tau,\tau^*) = W_Y^*(\gamma^*(s^*,e^*),\tau^*) + W_X^*(\tau)$, where

$$W_Y^*(\gamma^*(s^*,e^*),\tau^*) = \frac{9}{98} - \frac{5}{49}\tau^* - \frac{34}{49}(\tau^*)^2 + \frac{1}{98}\gamma^*(s^*,e^*)\left[8+16\tau^*+8(\tau^*)^2\right]$$

$$W_X^*(\tau) = \frac{25}{98} - \frac{3}{49}\tau + \frac{9}{49}(\tau)^2$$

The internationally efficient home tariff is the τ that maximizes $W(\gamma(s,e),\tau,\tau^*)+W^*(\gamma^*(s^*,e^*),\tau,\tau^*)$. Since government welfare in both countries is additively separable in τ, this is equivalent to maximizing $W_X(\gamma(s,e),\tau) + W_X^*(\tau)$. The solution to this problem is the internationally efficient tariff

$$\tau^E(\gamma(s,e)) = \frac{4\left[\gamma(s,e)-1\right]}{25-4\gamma(s,e)} \tag{5}$$

The second order condition is satisfied for $\gamma < \frac{25}{4}$, so again for all values of γ that lead to a non-prohibitive tariff.

2.2 Exogenous Political Pressure and Incentive Compatibility

In order to compare the results for the case of endogenous political pressure to Bagwell and Staiger (2005) results for exogenous political shocks, I provide the essentials of their setup.

They assume that γ and γ^* are each drawn independently from probability distributions with conditional density functions $H(\gamma)$ with $h(\gamma) = H'(\gamma)$. The support for this probability distribution is $\left[\underline{\gamma}, \overline{\gamma}\right]$ where $\overline{\gamma} < \frac{7}{4}$. They also assume γ and γ^* are private information.

This leads to a concern about incentive compatibility. It must be in a government's best interest to truthfully reveal its γ or else it will misrepresent its private information about γ in order to raise tariffs and create a terms-of-trade gain, thereby improving its unilateral welfare. They provide conditions that guarantee incentive compatibility on page 481.

On a separate note, it is important to make clear that in this strand of the literature, it is assumed that trade agreements are negotiated to maximize the expected welfare of politically motivated governments given the exogenously-determined political pressure they expect to face at the time of the agreement's implementation. I will follow this convention throughout.

3 Rigid Tariffs with Endogenous Political Pressure

In this section and the next, I demonstrate the implications of taking account of endogenous political pressure on some central design features of trade agreements. I do this by first summarizing the essential results from Bagwell and Staiger (2005) for the design of trade agreements when political considerations are exogenous and then compare them to the case under consideration here of endogenous political activity aimed at gaining protectionist tariffs.

In Section 6 I will examine the more realistic case where endogenous and exogenous political forces coexist. Until then, I will consider the cases separately to establish clearly the different dynamics that arise from the two distinct types of influence. I will use "γ" to represent the political economy parameter in a general sense, "$\gamma(s)$" when treating the case of pressure arising from exogenous shocks only, and "$\gamma(e)$" when referring to political pressure that results from the rent-seeking behavior of lobbies.[5] I begin with the case of rigid tariffs—that is, trade agreements that have no provision for flexibility. Rigid tariffs cannot be made to depend on the realized level of γ and so incentive compatibility considerations will not come into play.

Because the trade agreement is set ex-ante—that is, before political pressure is realized, regardless of its source—the process of choosing the optimal tariffs differs across the two cases. When γ is

[5]See Section 6 for a detailed discussion of the relationship and interactions between these two extreme cases.

exogenous, the government must plan for level of γ it will face *in expectation*. When political pressure in purely endogenous, the government has perfect foresight to plan for the γ it will face but must confront the fact that its decisions affect lobbying incentives.

With the introduction of endogenous political pressure, one must take a stand on whether lobbies influence the formation of the trade agreement or are only active once the trade agreement is in place. Since a central goal here is to determine the impact of relaxing the assumption that political pressure is exogenously determined, I assume the latter to make the comparison most direct to this literature in which by definition there can be no endogenous political pressure at the trade agreement formation stage. The former, which is undoubtedly an important possibility in many institutional settings, is left as an important extension.[6]

3.1 Perfect External Enforcement

I begin by assuming that perfect external enforcement is available for ensuring that the trading partners abide by the terms of the trade agreement. Although it is widely agreed that this is unrealistic, this is an important baseline case. Section 3.2 will relax this assumption and require that trade agreements be self-enforcing.

I compare strong bindings, in which the terms of the agreement are that tariffs must be set at the precise value stipulated and weak bindings—commonly referred to as tariff caps—in which the applied tariff can take any value as long as it is no greater than that which is agreed upon. To reiterate, with either form of rigid tariff, there is no incentive compatibility problem because the contractually-allowed tariff may not vary with γ.

3.1.1 Strong Bindings

When there is perfect external enforcement of an agreement that specifies the exact tariff each government must adhere to, Bagwell and Staiger (2005) derive the result that the optimal rigid, strong binding τ_S^R will be set at the level that is politically efficient for the expected realization of political pressure, $\gamma(s)$. In their environment, $\gamma(s)$ is exogenously determined and so the optimal trade

[6]Note that the endogenous trade policy literature that involves trade agreements (e.g. Grossman and Helpman (1995), Maggi and Rodríguez-Clare (2007)) explicitly assumes that trade agreements are formed in the face of political pressure while answering a different set of questions.

agreement tariff is chosen as

$$\tau_S^R = \frac{4\left[\mathbb{E}\gamma(s) - 1\right]}{25 - 4\mathbb{E}\gamma(s)}$$

which is simply Equation 5 evaluated at the expected γ.

The optimal strong binding is very different if we instead allow political pressure to be endogenously determined. In this simple setting with only endogenous political pressure and no exogenous shocks, there is no uncertainty; the level of political pressure can be determined through backward induction.

In the final stage, the external enforcement agency compels the government to apply the precise tariff listed in the trade agreement contract regardless of circumstances. Call this $\tau_{S,e}^R$ to distinguish the strong (rigid) binding in the case of endogenous pressure from τ_S^R when political pressure is exogenous above.

Moving back to the lobbying stage and given that the government will be compelled to apply $\tau_{S,e}^R$ regardless of the $\gamma(e)$ it faces, the lobby maximizes its payoffs by choosing $e = 0$. Making the binding strong removes any incentives for the lobby to exert effort since that effort will not change the level of tariff protection that it will receive. To be clear: $\tau_{S,e}^R$ does not depend on lobbying effort, so no effort is exerted.

Then when setting the trade agreement tariffs to maximize its political welfare, the government can predict that e will be zero. If it's the case that $\gamma(0) = 1$, the trade agreement will specify free trade.

Result 1. *When political pressure is entirely endogenous, under the equilibrium trade agreement with strong bindings the lobbies exert no effort and are afforded no protection if governments have no inherent bias toward protection.*

This very strong form of commitment for governments removes the lobby's commitment to pay for the protection it desires. Unless one assumes that the government is inherently biased toward the import-competing industry—that is, would provide protection in the absence of any political pressure being exerted—this case results in an outcome that is equivalent to the outcome under a social welfare maximizing government. This contrasts starkly with the prediction when political pressure is assumed to be completely exogenously determined.

3.1.2 Weak Bindings

Recall that a weak binding, call it τ_W^R, permits the government to apply any tariff less than or equal to τ_W^R. Weak bindings are often referred to as *tariff caps*. Bagwell and Staiger (2005) show several interesting results regarding weak bindings when there is perfect external enforcement and political pressure is in the form of exogenous shocks.

To be optimal, the weak binding must be set at the level that is efficient for the realization of political pressure that is expected conditional on tariff setting being constrained by the cap. Their Proposition 1 follows:

Proposition 1 (Bagwell and Stagier 2005)**.** *Governments prefer negotiating commitments that take the form of weak bindings over strong bindings. When governments negotiate commitments that take the form of weak bindings, they choose to adopt tariff bindings that (a) are higher than those they would choose if their negotiated commitments instead took the form of strong bindings and (b) imply that governments with low realizations of political pressure will set their applied tariffs strictly below the bound level.*

I now turn to the model under examination here with endogenous political effort.[7] As in the analysis of strong bindings, in place of expectations over a range of probabilistically-determined levels of political pressure, we can backward induct to determine the lobby's effort decision and the government's optimal choice of weak binding in anticipation of the lobby's behavior.

In the final stage, the government will seek to maximize its welfare by choice of τ given the political pressure that it faces and the enforcement of the tariff cap. Thus, it unilaterally maximizes Expression 1, so that the applied tariff is the Nash tariff $\tau^N(\gamma(e))$ as long as $\tau^N(\gamma(e)) < \tau_{W,e}^R$. Otherwise, it must set $\tau = \tau_{W,e}^R$ since the weak binding $\tau_{W,e}^R$ is externally enforced.

Knowing how the government will set the applied tariff, in the second stage the lobby makes its effort decision to maximize net profits according to Expression 2. If the lobby's optimal effort level in the unconstrained problem (label it e^L) would lead to $\tau^N(\gamma(e)) > \tau_{W,e}^R$, the lobby will reduce its choice so that no effort is wasted. I label the lobbying effort choice that leads to the weak binding level as $e_{W,e}$ so that $\tau^N(\gamma(e_{W,e})) = \tau_{W,e}^R$.

[7] As above, in this section I consider endogenous political pressure alone in place of exogenously-determined γ.

We are now in a position to determine how the governments set trade agreement tariffs. Their goal is to maximize their joint welfare as in Expression 3 given the behavior they expect from the lobbies. Again, we can restrict attention to the home country and the X sector because of the symmetry and separability of the economy.

We know that the lobby will either choose its unconstrained optimal effort e^L, or $e_{W,e}$ in the case that its optimal effort would lead to a tariff level higher than that allowed by the weak binding. The government's tariff cap choice can reduce lobbying effort; it cannot, however, increase lobbying effort above e^L. The government is unable to use a weak binding to encourage extra lobbying—at least in the case with only one import-competing lobby under consideration here.[8]

I assume for simplicity of exposition that the government does not set the tariff binding $\tau^R_{W,e}$ higher than that which would result from the lobby's optimal effort e^L, as setting a higher tariff cap would not change lobbying behavior or outcomes in any way. Here we see a marked contrast with the case of exogenous political pressure, where low realizations of γ lead to applied tariff levels below the cap in an economically meaning sense.

The optimal home tariff $\tau^R_{W,e}$ under the trade agreement is the one that maximizes joint government welfare. As argued in Section 2.1, this is

$$W_x\left(\gamma(e),\tau)\right) + W^*_x\left(\tau\right)) \tag{6}$$

where the lobby will be constrained to exert no more than the amount of effort that produces the capped $\tau^R_{W,e} = \tau^N(\gamma(e))$. Recall that the Nash tariff, $\tau^N(\gamma(e))$ is the solution to the unilateral optimization problem the home government faces when choosing the applied tariff level in the third stage. It is given by Expression 4, which contains the mapping between the political pressure the lobby exerts and the government's unilateral tariff response. In base terms, Expression 4 tells us what e the lobby pays in order to receive a particular $\tau^N(\gamma(e))$ equal to the tariff cap $\tau^R_{W,e}$that limits it behavior.

Notice that the maximand in Expression 6 is exactly the same as that in this third-stage maximization problem except it adds on the foreign government welfare, so that $\tau^R_{W,e}$ is lower than the unilateral tariff as the terms-of-trade externality is internalized. For the same effort, the lobby receives a lower tariff, so the trade agreement both makes tariffs more expensive and caps the set of possible tariffs. The marginal effect on lobbying behavior is explored in Section 5.

[8] Introducing lobbies for the export industry could reverse this: lobbying effort by exporters could be encouraged in support of capping the import tariffs of the partner country.

Two main conclusions can be drawn about the function of weak bindings. First, if the lobby's effort level is reduced by the cap, that is if $e_{W,e} < e^L$, the weak binding serves to restrain political pressure.

Second, if the level of the optimal weak binding $\tau^R_{W,e}$ is strictly positive, the weak binding is at least in part serving to generate political involvement—most often thought of as campaign contributions—that the government finds beneficial from its politically-motivated point of view. The government could have chosen a cap of zero and eliminated lobbying activity altogether. In fact, any strong binding accomplishes this very feat, but is also *unable* to generate lobbying activity because of its effect on lobbying incentives. Thus the introduction of endogenous political pressure provides an explanation of the prevalence of tariff caps: they are a a sort of carrot to encourage political contributions, or perhaps they should be seen as a stick with which to threaten the removal of protection if political support does not continue.[9]

Result 2. *(a) When political pressure is entirely endogenous, governments prefer negotiating commitments that take the form of weak bindings over strong bindings. When governments negotiate commitments that take the form of weak bindings, they choose to adopt tariff bindings that are higher than those they would choose if their negotiated commitments instead took the form of strong bindings. (b) Governments will not set applied tariffs strictly below the bound level, but they may use the weak tariff binding both to restrain and encourage endogenous political pressure.*

Note that part (a) of Result 2 matches Proposition 1 of Bagwell and Staiger (2005). The similarities are cosmetic only; the result holds in the case of endogenous $\gamma(e)$ because of the extreme result for strong bindings that no lobbying effort is exerted and the trade agreement is at free trade. This can be replicated with a tariff ceiling of zero. Part (b) points out that the governments can use a tariff cap to manipulate lobbying incentives so that political effort is neither too low or too high.

3.2 Self-Enforcing Trade Agreements

Here I relax the assumption of perfect external enforcement, since this is not widely available in the context of international trade relations. External enforcement is replaced with promises of future

[9]Note that this is a generalization of a point made by Maggi and Rodríguez-Clare (2007); in their model, the result relies on capital mobility and does not hold when capital is perfectly immobile as are the specific factors in this model.

cooperation and punishment is modeled via a repeated game. I will first describe this repeated game and then present the analysis for the case of (rigid) weak bindings.

3.2.1 Repeated Game

For the setting of exogenous political pressure, Bagwell and Staiger assume that γ is independently and identically distributed across governments and time. Because the governments are faced with asymmetric information, perfect public equilibrium (PPE) is the appropriate solution concept. Here attention is restricted to symmetric, stationary PPE.

In order to establish an equilibrium, we must ensure that both the on-schedule (static) incentive constraint and the off-schedule (repeated-game) incentive constraint is satisfied. We know that the former is trivially satisfied for the case of rigid bindings, so it is only the repeated-game constraint that must be considered here. Following Bagwell and Staiger (2005) and most of the literature, I assume that any deviation triggers a reversion to the static Nash equilibrium—what is known as 'grim trigger.'[10]

3.2.2 Self Enforcement with Weak Bindings

When political pressure is exogenous, Bagwell and Staiger (2005) perform a standard repeated-game prisoner's dilemma analysis and show that if governments are patient enough (δ is sufficiently high), the optimal weak binding from the perfect external enforcement setting can always be sustained with repeated-game incentives.

When γ is endogenously-determined, repeated-game enforcement is altered relative to the case of exogenously-given political pressure. This is because, in place of a stochastic process that determines γ, γ is determined by a new repeated-game player who has incentives relative to whether the trade agreement is followed or reversion to the non-cooperative Nash outcome takes place.

When γ is exogenous, the optimal trade agreement tariff is the same under perfect external enforcement and self-enforcement because the change in enforcement conditions cannot affect the realization of γ. We will see that moving from a static problem with external enforcement to a repeated-game problem with an enforcement constraint changes the lobby's decision problem. However, it

[10] See Klimenko, Ramey, and Watson (2008) and Buzard (2014) for alternatives that take seriously the threat of governments renegotiating out of punishments that are not themselves incentive compatible.

does not alter the within-period costs and benefits and so in the case of endogenous political pressure we will see the same result that the optimal trade agreement tariff in invariant to the enforcement conditions.

Recall that the government's most preferred trade agreement tariff in this setting is the one that would allow it to provide the level of protection that is demanded *ex-post*. Enforcement considerations do not change the protection demands when γ is exogenous. Similarly, because the government's objective function does not change and it is able to use the tariff cap to control the lobby's effort level, as long as it is sufficiently patient, it will set the same tariff cap.

Let us see how this works. Again, because of symmetry and separability, we can focus on the home government's choice of τ and the X industry.

The government's incentive constraint is given by

$$\frac{\delta}{1-\delta}\left\{W_x(\gamma(e^R),\tau^R_{W,e}) + W^*_x(\tau^R_{W,e}) - \left[W_x(\gamma(e^N),\tau^N(\gamma(e^N)) + W^*_x(\tau^N(\gamma(e^N))\right]\right\}$$
$$\geq W_X(\gamma(e^B),\tau^B(\gamma(e^B)) - W_X(\gamma(e^R),\tau^R_{W,e}) \quad (7)$$

where δ is the discount factor assumed common to the government and lobby, $\tau^R_{W,e}$ is the same tariff cap from Section 3.1.2, and τ^B is the "break" tariff. Any $\tau > \tau^R_{W,e}$ is sufficient to breach the trade agreement and trigger Nash reversion; $\tau^B(\gamma(e^B))$ is defined as the tariff the government would choose as unilaterally optimal if faced with e^B, where e^B is the minimum lobbying effort that would give the government incentive to break the trade agreement in the absence of external enforcement.

On the left side of the inequality is the discounted per-period gain from maintaining the trade agreement relative to Nash reversion. In order for the government to have the incentive to abide by the agreement, this must be at least as large as the benefit to cheating. This is the current period increase in unilateral welfare from the tariff applied when breaking the agreement and is given on the righthand side of Inequality 7.

For a given δ, τ^B and e^B are derived using Equation 4 and Expression 7 evaluated at equality. e^B can be interpreted as the minimum level of lobbying effort that will persuade the government to abrogate the agreement. It must provide significantly more unilateral welfare than the trade agreement tariff in order to compensate the government for the loss of cooperation in every future period.

The lobby's incentives must also be satisfied, as the government's decision on whether to abide by the agreement or break it depends on the amount of lobbying effort it encounters. In order for

the lobby to prefer the trade agreement tariff to the option of causing the agreement to be broken and tariffs to revert to the non-cooperative level, the following must hold

$$\frac{1}{1-\delta}\left[\pi(\tau^R_{W,e}) - e^R\right] \geq \pi(\tau^B) - e^B + \frac{\delta}{1-\delta}\left[\pi(\tau^N) - e^N\right] \tag{8}$$

That is, the present discounted value of net profits under the trade agreement must be weakly higher than one period of net profits from the "cheater" tariffs and the discounted future Nash profits.

Here we have the possibility of a starkly different result from that under exogenous political pressure, where Bagwell and Staiger (2005) show that sufficiently patient governments can always sustain the optimal trade agreement tariffs. Instead, the addition of a second incentive constraint can make it impossible to sustain the politically efficient tariffs.

To see this, start by noticing that the lefthand side of Expression 7 in increasing in δ, while the righthand side is constant in δ. That is, as the government becomes more patient, it is easier to satisfy the government's constraint. Equivalently, it requires a larger e^B to violate the constraint.

Shifting attention to the lobby's incentive constraint in Expression 8, this becomes harder to satisfy as δ increases. That is, the lefthand side is decreasing in δ and the righthand side is increasing in δ, and this relationship holds even taking into account the influence from the government's constraint on e^B as long as e^B is to the left of the lobby's optimal choice of effort. Once e^B passes e^L, $\pi(\tau^B) - e^B$ begins to decrease and it's possible for the effect of δ on the lobby's constraint to eventually be overturned.

In general, however, we cannot be guaranteed that even the most patient government can sustain cooperation at the politically optimal trade agreement level. At issue is the behavior of the lobby, which is now a formal player in its own right and must be incentivized to keep its behavior on the equilibrium path. More patient lobbies are willing to work harder to encourage the government to break the trade agreement so that they can enjoy infinite periods of Nash tariffs, so increasing the discount factor makes it more difficult rather than easier to satisfy the lobby's constraint.[11]

Result 3. *The presence of the lobby as a repeated-game player may imply that the politically optimal self-enforcing trade agreement tariff is strictly greater than* $\tau^R_{W,e}$.

If there is no δ such that Inequalities 7 and 8 hold simultaneously, the governments must raise the trade agreement tariff, which looses both incentives constraints simultaneously.

[11] The essential point underlying this result was first made by Buzard (2014).

4 Endogenous Political Pressure and the Escape Clause

I follow Bagwell and Staiger (2005) in examining a trade agreement with an escape clause by adding a second negotiated binding to the agreement so that there is one (weak) binding for when political pressure is low / normal and a higher (weak) binding for exceptional circumstances of high levels of political pressure. Escape clauses are common features of trade agreements in practice, and when one models political pressure as exogenous, an escape clause seems attractive: in the presence of a particularly large negative political shock, being bound to a tariff designed for normal times would cause significant welfare losses to the politician.

However, because the tariff allowed under the trade agreement with an escape clause varies with the announced level of political pressure, the incentive compatibility constraint now comes into play: a government may gain an advantage by misreporting the level of γ it experiences. In their Proposition 4, Bagwell and Staiger show that a trade agreement with a costless escape clause cannot improve welfare because it cannot be made incentive compatible. No matter the realization of the stochastic γ, it is always in the government's interest to announce that γ is high, which allows it to apply any tariff up to the higher weak binding. This deviation improves unilateral welfare while imposing a terms-of-trade externality on the trading partner.

A similar problem arises in the case of endogenous political pressure, but with no parallel potential gain. The problem of asymmetric information remains, as lobbying effort is not observable to the trading partner. The appeal of an escape clause is to provide the flexibility of a higher binding in exceptional circumstances when political pressure is randomly high. But in the stark case under examination here with purely endogenous politics, an exceptionally high γ can only derive from higher effort exerted by the lobby. If one chooses an optimal tariff cap, a second, higher cap can only encourage excess, sub-optimal lobbying.

Thus, while with a costless escape clause there is no way to make truth-telling incentive compatible, this is of little consequence. The government would actually be *truthfully* reporting the higher level of $\gamma(e)$ as long as it is worthwhile for the lobby to increase its effort to this level. The appeal of an escape clause is missing in this case, but the potential for governments to be forced ex-post to exploit the escape clause in a way that damages their ex-ante welfare remains.

4.1 Escape Clauses with Strong Bindings

Suppose that political pressure derives only from endogenous sources but an escape clause is to be implemented anyway. As Bagwell and Staiger (2005) point out, in order for an escape clause to be useful to the government, it should be costly so that its use can be made incentive compatible. They suggest several avenues for introducing a cost for the use of the escape clause.

One possibility is to make the escape clause tariff a strong binding instead of a weak binding. The cost imposed here is the following: if the realization of γ is such that the optimal tariff is above the agreed-upon weak binding for normal times but below the strong binding for exceptionally high realizations of political pressure, the government must choose between applying the lower weak binding and the precise escape-clause tariff. In this case, there are welfare losses from implementing a sub-optimal tariff level that are not present if the escape clause tariff is a weak binding.

When γ is endogenous, the government is not subject to such random, unpredictable realizations of political pressure. It can avoid such costs by setting the escape clause tariff precisely at the level the lobby will find optimal to ask for; it thus avoids the mechanism that allows for incentive compatibility as well. In addition, given that the lower, normal binding could be set optimally for the government, the government only stands to lose from entering into a trade agreement with such an escape clause. This is, again, assuming that there is no exogenous source of political shocks for which flexibility is desired.

Thus, in this case the strong binding does not really create an incentive-compatibility-inducing cost, but again the central problem is that of lobbying incentives. This could explain, as Bagwell and Staiger point out, why the WTO does not incorporate strong bindings for the escape clause.

4.2 Escape Clause with Side Payments

Suppose instead that the use of the escape clause must be accompanied by a side payment when the higher tariff is applied. In efficiency terms, this will only redistribute surplus from the trading partner who invokes the escape clause to the partner whose goods are targeted by the higher tariff. This is not entirely realistic as cash transfers are rarely observed in the WTO and other trade agreements; instead

compensation is in the form of retaliatory tariffs—which are not efficient.[12]

Bagwell and Staiger (2005) show that, again, the transfer function must satisfy two incentive compatibility conditions: the static condition that makes it worthwhile to truthfully reveal one's true γ, and the repeated-game incentive constraint required for self-enforcement. Given these requirements, their Proposition 5 establishes that an appropriate transfer scheme can make a trade agreement with an escape clause incentive compatible.

Given the limited nature of the result in Section 3.2.2, for the case of endogenous γ I restrict attention to economies in which the jointly optimal weak binding is supportable. The conditions given in Lemma 1 of Bagwell and Staiger (2005) are not materially changed by substituting endogenous γ for exogenous γ, so incentive compatibility in the static sense is ensured.

It is the repeated-game, or off-schedule, constraint that is significantly altered. The new element compared to self-enforcement without the escape clause is that the government can cheat on both its tariff and its transfer payment. With no lobby, the Bagwell and Staiger result shows that this temptation can be overcome; the question is whether the lobby makes this more difficult.

The answer is that it does not. Assuming the lobby represents a negligible share of the population, it does not bear the cost of the transfer. In fact, because it receives all the benefit of the tariff increase under the escape clause with none of the burden of paying for it, the lobby is much better off under the trade agreement with escape than the trade agreement without escape.

Here, we have a mechanism that is incentive compatible despite the presence of lobbying. It makes the lobby exert effort in order to receive the higher level of protection under the escape clause just as in the other mechanism. And although the burden of the transfer falls on others in the economy, at least the trading partner is compensated. Here the government is truthfully revealing the level of political pressure it faces, but that pressure is created by endogenous forces that are intensified by the existence of the escape clause.

In the next section, I ask the question of whether this type of outcome is likely to be consistent with the ex-ante best interests of the governments themselves as a prelude to exploring the likely intentions behind the design of such escape clauses.

[12]Note also that the WTO Safeguards agreement has a dynamic use constraint but removes the requirement for compensatory action in the first three years.

5 Political Objective Functions and the Role of Trade Agreements

The previous sections analyze in general the effects of various forms of trade agreements when political pressure is endogenous. I now use the specific functional forms for the economy given in Section 2 and compare government objective functions to understand the impact of strong bindings, weak bindings and escape clauses on government welfare.

To reiterate, in line with the dominant strain of the literature, I have assumed that the governments' choice of trade agreement tariff is optimized with respect to the political pressure it expects to experience after the trade agreement is signed. In the case of exogenous political pressure, the best one can do is take an expectation given the distribution of γ, or possibly build some kind of flexibility into the agreement through tariff caps or an incentive compatible escape clause.

With endogenously-determined political pressure with no shocks—the simple case examined so far here—each government can predict the political pressure it will face and in some cases use the trade agreement to alter the incentives of the lobby. Since the government has some control through the trade agreement over the level of γ it will face, it becomes important to understand how the government's welfare varies in γ.

Let's begin with the Baldwin (1987)-style government objective function that is most common in the recent literature on trade agreements and that has been in use throughout this paper so far, specialized to the case of endogenous pressure onlyca.

$$W(\gamma(e), \tau, \tau^*) = CS_X(\tau) + \gamma(e) \cdot \pi_X(\tau) + CS_Y(\tau^*) + \pi_Y(\tau^*) + TR(\tau) \tag{1}$$

What we would like to know is at what $\gamma(e)$ the government's welfare is maximized, given that it will choose τ according to either Equation 4 when setting tariffs unilaterally or Equation 5 when setting tariffs in the context of a trade agreement.

The answer turns out to be the same for the unilateral and joint problems. Starting with the non-cooperative maximization problem with respect to γ (there is no loss in suppressing the dependence of γ on e for the time being):

$$\max_{\gamma} W_x(\gamma, \tau) + W_y(\tau^*)$$

The first order condition is

$$\frac{\partial W_x}{\partial \gamma} + \frac{\partial W_x}{\partial \tau}\frac{\partial \tau}{\partial \gamma} = 0$$

In an envelope-theorem style result, because the Nash tariff is the result of the government's optimization with respect to τ, $\frac{\partial W_x}{\partial \tau} = 0$ so that the first order condition reduces to $\frac{\partial W_x}{\partial \gamma} = 0$.

Turning to the maximization of joint welfare in the trade agreement, we have

$$\max_{\gamma} W_x(\gamma, \tau) + W_y(\tau^*) + W_x^*(\tau) + W_y^*(\tau^*)$$

The first order condition is

$$\frac{\partial W_x}{\partial \gamma} + \frac{\partial W_x}{\partial \tau}\frac{\partial \tau}{\partial \gamma} + \frac{\partial W_x^*}{\partial \tau}\frac{\partial \tau}{\partial \gamma} = \frac{\partial W_x}{\partial \gamma} + \left[\frac{\partial W_x}{\partial \tau} + \frac{\partial W_x^*}{\partial \tau}\right]\frac{\partial \tau}{\partial \gamma} = 0$$

Here, it is the efficient joint tariff that is chosen, and it is chosen precisely by setting the term in brackets equal to zero so that we have the first order condition simplifying to the same expression as in the unilateral case.

An interior solution does not exist to this problem. By inspection, the partial derivative of government welfare with respect to γ is simply producer surplus in the import sector. This is always positive. Thus, under the unweighted government welfare function in Expression 1, government welfare is maximized when γ takes on the highest value achievable.

This can be seen in Figure 1, which displays a graph of unweighted government welfare from Expression 1 under the parameterization of Bagwell and Staiger (2005) used throughout this paper.[13]

This result that government welfare is strictly increasing in the political pressure parameter would seem to be related to the fact that, although γ is often referred to as a "political economy weight," it is in fact not a true weight in Expression 1. That the extra importance given to profits of importers when γ increases is pure additional welfare with no concomitant reduction elsewhere may be an assumption worth weakening, particularly in the context of endogenous political activity.

An alternative formulation for the government objective function is one in which γ is a true weight in the following straightforward way:

$$\frac{1}{4+\gamma(e)}CS_X(\tau) + \frac{\gamma(e)}{4+\gamma(e)}PS_X(\tau) + \frac{1}{4+\gamma(e)}CS_Y(\tau^*) + \frac{1}{4+\gamma(e)}PS_Y(\tau^*) + \frac{1}{4+\gamma(e)}TR(\tau) \quad (9)$$

See the Appendix for the mathematical derivations corresponding to Figure 2. They show that, particularly for the trade agreement tariffs, government welfare first declines and then increases, with

[13]Note that for low values of γ, the internalization of the terms of trade externality that is accomplished by the trade agreement does provide higher welfare for the government, but the improvement disappears as γ approaches the level $\frac{7}{4}$ that provokes a prohibitive tariff.

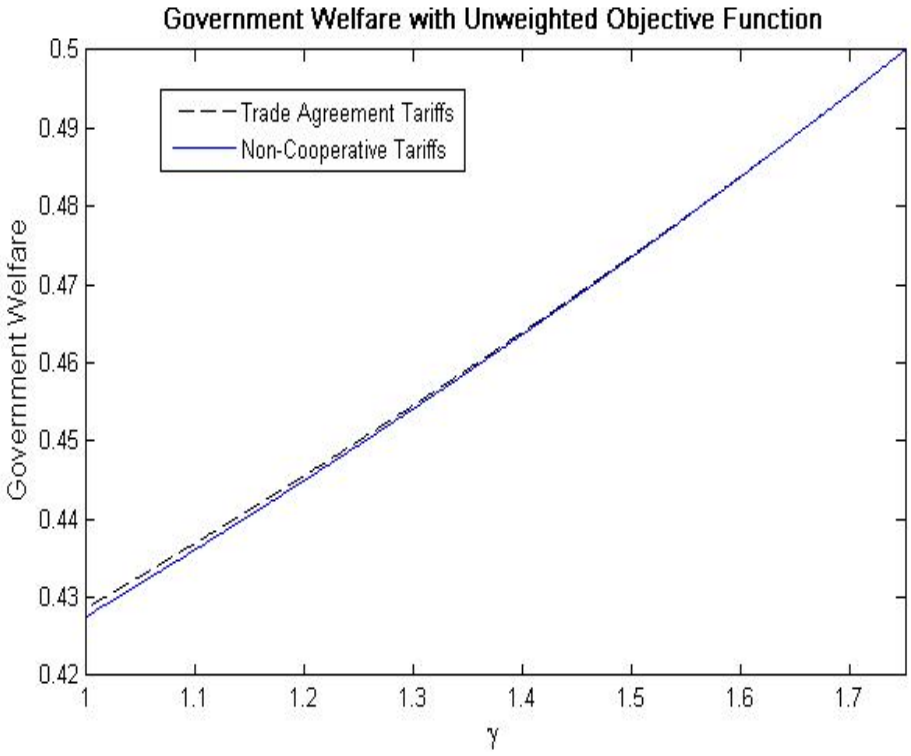
Government Welfare with Unweighted Objective Function
Trade Agreement Tariffs
Non-Cooperative Tariffs
Government Welfare
0.5
0.49
0.48
0.47
0.46
0.45
0.44
0.43
0.42
1
1.1
1.2
1.3
1.4
1.5
1.6
1.7
γ

Figure 1:

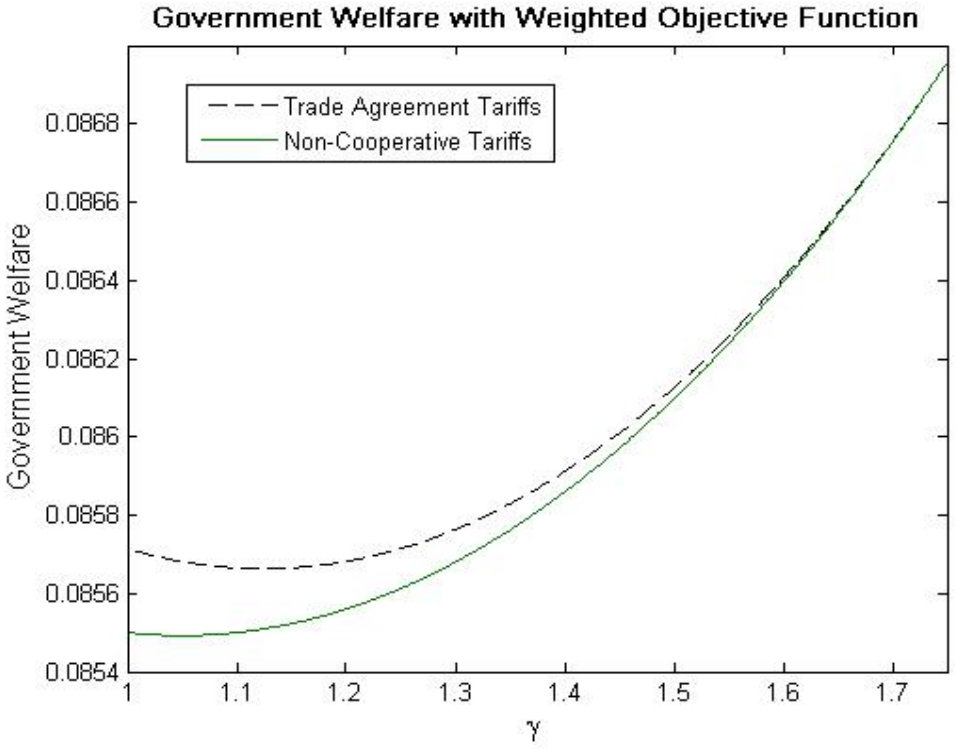

Figure 2:

the minimum value occurring around $\gamma = 1.111$. The maximum still unquestionably occurs at the maximum value of γ, which leads to the prohibitive tariff of $\frac{1}{6}$. But if a government's objective function is closer to Expression 9 than Expression 1, the government may be interested in using the trade agreement to manipulate the lobby's behavior and therefore the political pressure that it experiences.

Whether or not the optimal trade agreement would set a tariff cap aimed at reducing lobbying depends on the lobby's incentives, which depends in turn on the shape of $\gamma(e)$. Let's look at two parameterizations in a simple family of functions for $\gamma(e)$ that demonstrate drastically different outcomes.

I begin with $\gamma(e) = 1 + e^{.2}$. With no trade agreement, the lobby maximizes its net profits by choosing $e = 0.0014$, which results in $\gamma = 1.267$ and a Nash tariff of 0.092. When facing trade-agreement tariff setting, the lobby finds it optimal to set $e = 0.002$, which results in $\gamma = 1.289$ and a trade agreement tariff of 0.058. Import-competing producer profits decrease from 0.095 to 0.089,

while government welfare increases from 0.0856 to 0.0858. This is higher than if the trade agreement were to cap tariffs at zero—or, equivalently—employ a strong binding, which delivers government welfare of 0.0857.

Here, given the way in which lobbying effort is translated into political support as represented by γ, the government cannot improve its welfare by further manipulating lobbying incentives. Discouraging lobbying would reduce welfare; the government's interest is solely in encouraging lobbying effort. This is does through the introduction of the trade agreement: by making protection more expensive, on the margin the lobby pays more in order to get even less protection than it did in the absence of the agreement. But there is nothing further the government can do to increase γ.

This example stands in contrast to a less concave (in the sense of Arrow Pratt) γ. Take $\gamma(e) = 1 + e^{.4}$. With no trade agreement, the lobby maximizes its net profits by choosing $e = 0.0005$, which results in $\gamma = 1.049$ and a unilateral tariff of 0.057. When facing trade-agreement tariff setting, the lobby finds it optimal to set $e = 0.0007$, which results in $\gamma = 1.055$ and a trade agreement tariff of 0.011. Import-competing producer profits decrease from 0.0906 to 0.083, while government welfare increases from 0.08549 to 0.08567. This is lower than if the trade agreement were to cap tariffs at zero, which delivers government welfare of 0.085714.

In this case, the government would experience welfare well to the left of the minimum point if it simply set the trade agreement tariff in expectation of the lobby's optimal behavior. It does not have a means to encourage any additional lobbying, but it can discourage lobbying. If it set a tariff cap of zero—assuming the conditions for self enforcement outlined in Section 3.2.2 are met—the government can use the trade agreement to improve welfare by changing lobbying incentives and therefore the political pressure it encounters. The stark prediction that the best the government can do is by setting the trade agreement to zero would be softened in an environment such as that in Section 6 where there are both endogenous and exogenous sources of political pressure.

It is not claimed that the weighted government welfare function in Expression 9 perfectly represents the preferences of those who negotiate trade agreements. However, examining this alternative in combination with endogenous lobbying points out some new ways to view the function of trade agreements and tariff caps in particular. It can also provide a bridge between the theoretical literature and the claims of trade policy practitioners that an important role of trade agreements is to rein in protectionist pressure.

In the next section, I turn to the implications for the structure of the WTO procedures for administered protection, and the escape clause in particular, in a more realistic setting where both exogenous political shocks and endogenous lobbying are present.

6 The Purpose and Design of the Escape Clause

The title of this section pays direct homage to Bagwell and Staiger (2005) for their above-referenced, foundational work on the escape clause in a setting with exogenous political pressure. Here, I ask how the addition of endogenous political pressure alters the optimal design of an escape clause.

When γ is exogenous, the purpose of the escape clause is clear: it improves welfare by allowing the government to apply a higher tariff when the realization of γ is particularly high. In this case, the government would suffer significant welfare losses from abiding by the lower, normal tariff binding, and may find its interests are better served by abrogating the trade agreement if no escape were permitted.

In Section 4, I show that there is no such benefit when political pressure is purely endogenous in nature. All political pressure can be anticipated by the government and accounted for in the normal binding, so any higher tariff provided for escape would either not be used or would reduce government welfare by encouraging excess political pressure in the case where the trade agreement tariff is being employed to reduce lobbying.

In reality, it is likely that both exogenous shocks and endogenous forces contribute to the pressure to which policy makers are subject. Thus, the desire for flexibility that derives from the purely exogenous case remains and we desire to see if it is possible to implement an escape clause in the face of the additional endogenous source of political pressure.

So we go back to the general formulation where γ is a function of both lobbying effort e and exogenously-determined events that create political pressure as in Maggi and Staiger (2011), s. Let us take a simple case where the political pressure from the two sources are additively separable so that $\gamma(s,e) = \gamma(s) + \gamma(e)$. Various interpretations are possible, including that some part of $\gamma(s)$ derives from lobbying associated with the exogenous shock, while $\gamma(e)$ is pure rent-seeking. Assume the interesting case that $\gamma(\underline{s}) < \gamma(\overline{s}) < \gamma(e^L)$; that is, the optimal political economy parameter from the lobby's point of view is greater than that which results from even the highest value of the exogenous

shock variable. This implies that the lobby has the incentive for all realizations strictly below $\overline{s}$ to add pressure to that which comes directly from exogenous sources.

Imagine first that s and its mapping $\gamma(s)$ are completely unverifiable so as to make the analogy to the exogenous shocks examined above complete. There is a large parameter space over which an escape clause could not function in the way it is intended. When the realization of the shock is high, the government will report the high shock and apply the escape clause tariff. But when the shock is low, the lobby will exert effort so that the sum of $\gamma(s)$ and $\gamma(e)$ equals the high realization. From the point of view of maximizing the political welfare of the governments, this is only problematic if, as demonstrated in Section 5, the governments' ex-ante welfare is reduced by excess lobbying.

Given that the intent of the escape clause is to provide flexibility for high realizations of $\gamma(s)$, we see that the presence of endogenous lobbying can easily destroy its efficacy for this purpose as the lower binding will never be used. The water in the escape clause will be filled in by endogenous political pressure.

This is not a problem of incentive compatibility. Similar to Beshkar (2010b), it can be shown [formal result coming soon] that a dispute settlement body that provides an independent signal about the value of $\gamma(s, e)$ on which the governments condition punishments for misreporting can make truth-telling incentive compatible. That is, a government will not over-report its political-economy pressure in order to impose a terms-of-trade externality on its trading partner. But this is of little consequence because the political-economy parameter will always take on its highest value.

Given the inability of achieving the first best in this environment, what can be done? Unless political pressure that comes from a shock can be distinguished from political pressure that is purely rent-seeking, there appears to be little hope that the two can be disentangled through the investigation of a body such as the WTO's DSB. In fact, in its rulings the DSB does not appear to take into account political conditions at all.

It seems plausible that this kind of dynamic is the reason that use of the WTO Safeguards are predicated on verifiable economic indicators–the s's. This would appear to be the only way to prevent lobbies from exploiting the escape clause for uses for which it was not intended. However, once a shock has occurred, given that the DSB cannot distinguish between $\gamma(s)$ and $\gamma(e)$, determining the tariff that should be applied could only be done if (a) the DSB has the mapping $s \to \gamma$ *and* this strong form of separability holds. These conditions seem unlikely to be met in reality and we observe, again,

that the DSB makes no attempt to determine the political parameter. Without this information, it thus can only certify the legitimacy of a Safeguard measure; it cannot determine the correct level at which the Safeguard measure should be applied.

7 Conclusion

I have shown that accounting for endogenous lobbying has important implications for the design of trade agreements. Tariff caps may be used alternatively to reduce lobbying activity, or to incentivize lobbies to remain active after a trade agreement is in place, whereas a strong binding would remove lobbies' incentives to provide political support ex-post.

The addition of the lobby can make it harder to sustain cooperation and complicates the incentive compatibility problem associated with the use of escape clauses. The temptation for lobbies to exploit the opportunity presented by an escape clause provides a justification for the WTO requirements that verifiable economic conditions are met in order to legally invoke these protections.

I introduce a weighted government utility function that is a slight modification of the standard Baldwin-style government objective function to demonstrate that it may be in even a politically-motivated government's interest to use a trade agreement to restrain political activity. The fact that the WTO Safeguards Agreement replaced compensation in the first three years of the invocation of a safeguard with a dynamic use constraint is consistent with the idea that the organization and the governments that constitute it are working to reduce rent seeking by lobbies. Section 4 demonstrates that lobbies do not care about the compensation since the costs do not fall on them, whereas a dynamic use constraint directly affects their ability to receive protection in the future.

There are many exciting avenues to extend this work. Incorporating lobbying over the formation of trade agreement would help to build a bridge to the important work at the intersection of endogenous political economy and trade policy. Further, this simple framework demonstrates a tractable way to introduce endogenous political pressure into many of the important questions that have been and are currently being explored concerning the design of trade agreements and the institutions that facilitate them.

8 Appendix

Optimal γ for Weighted Government Welfare Function:

The first order condition for the weighted welfare function in Expression 9

$$\frac{\partial W}{\partial \gamma} = \frac{1}{(4+\gamma(e))^2}\left[-CS_X + 4 \cdot PS_X - CS_Y - PS_Y - TR\right] = 0$$

Examining the expression in brackets:

$$-CS_X + 4 \cdot PS_X - CS_Y - PS_Y - TR =$$

$$-\frac{9-24\tau+16\tau^2}{98} + 4\frac{4+8\tau+4\tau^2}{49} - \frac{7\tau-42\tau^2}{49} - \frac{9+18\tau+9\tau^2}{98} - \frac{16-24\tau+9\tau^2}{98}$$

$$= \frac{-9+32-9-16}{98} + \frac{24+64-14-18+24}{98}\tau + \frac{-16+32+84-9-9}{98}\tau^2$$

$$= \frac{-2}{98} + \frac{80}{98}\tau + \frac{82}{98}\tau^2$$

This expression is negative at $\tau = 0$, increases monotonically until it reaches 0 at approximately $\tau = 0.024$ and then increases monotonically thereafter.

Because τ is an increasing function of γ, this pattern holds for γ as well. $\frac{1}{(4+\gamma(e))^2}$ is positive (and decreasing as a function of γ), so the pattern holds for the derivative as a whole. Thus the FOC delivers a minimum point and the maximum must be at one of the endpoints. Calculations show that $W(\gamma = 1.75) > W(\gamma = 1)$. ■

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