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RESEARCH ARTICLE

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Political competition and bilateral direct investments

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Abstract This paper investigates a basic question about the international political economy—why is international trade not free? To answer this question, we modified Grossman and Helpman (1994) by considering that interest lobbies make political contributions to both the incumbent government and the political challenger in order to influence the incumbent government's choice of trade policy. By examining the contribution schedules under a framework of bilateral direct investments, we find that the modified Ramsey rule still holds under our setting.

Keywords tariffs, political contributions, bilateral direct investments

JEL Classification F13

1 Introduction

Perhaps one of the most interesting areas in international economics is the free trade theory. The classical theory argues that free trade has no distortions and hence is perfect. But, in practice, no country prefers to employ free trade. Hence there is much literature explaining the gap between the classical theory and practice. This includes, among others, the pioneering work of Stigler (1971), Peltzman (1976) and Hilman (1982) in modeling "pressure-groups" and forming the political support function, the tariff-formation function approach by Findlay and Wellisz (1982), Feenstra and Bhagwati (1982), the direct democracy model by Mayer (1984), and the electoral competition approach by Magee-Brock-Young

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(1989). Finally, Grossman and Helpman (1994, 1996) developed a relatively mature and elegant political contribution approach. Since the model of Grossman-Helpman is particularly appealing, recently many researchers base their work on their frameworks. For example, Levy (1997) developed a theory of tariff protection that incorporates cooperative behavior and lobbying. Krishma and Mitra (2001) investigated the impact of unilateral trade liberalization by using a political approach. And Blanchard (2002) employed their basic frameworks to explain foreign direct investment.

Briefly speaking, all of these international political economic models try to explain two things—why international trade is not free though free trade is so advocated in theory? And why are trade policies universally prejudiced against trade?

For the first question, the idea is now well accepted that political intervention makes trade not free. Basically, there are two different approaches to explain this: the electoral competition approach, which emphasizes that the lobby's primary object of contributing to different political candidates is to affect the election result, and the political support approach, which believes that the most important reason that lobbies make contributions is to curry the choice of policy rather than to influence the election outcome.

Grossman and Helpman (1994) chose the latter. Though their model is widely accepted, it is not convincing at some points, "The lobbies do not contribute to any challenger candidates, nor do they take into account any effect of their contributions on the likelihood that the incumbent will be reelected." They, themselves, recognize, "… we recognize the absence of explicit political competition as a potential shortcoming of our approach …" Hence, in this paper, we first try to add the political competition to their basic frameworks to analyze the optimum tariff or subsidy which the incumbent government will choose.

The second problem is still an open question even now[1]. Very little literature has analyzed this aspect. The existing literature cannot explain why trade policy is persistently applied to reallocate resources to the import-competing sector rather than to export-oriented industries. According to the analysis by Rodrik (1995), Grossman and Helpman's (1994) model provided no contribution to the solution of this puzzle. However, Levy (1997) offered a detailed analysis of what would need to hold for trade promotion and trade protection to exist. In this paper,

[1]Another puzzle of political economics is why a country will use trade policy as a major adjustment instrument for redistributing income. A convincing explanation for this puzzle is provided by Staiger and Tabellini (1987). They argued that trade policy is the consequence of a kind government's incentive to offer "surprise" protection to workers adversely affected by a reduction in world prices.

we try to analyze the relative question within the environment of bilateral direct investments by using Grossman-Helpman's approach.

The paper is organized as follows. Section 2 provides a survey of relative literature on the political economic approach. In Section 3, a model in which home lobbies make contributions to the home incumbent government and political candidate in order to influence trade policy is examined. Section 4 extends this model to analyze trade promotion and trade protection by allowing for bilateral direct investments and restricting that each country has one import-competing industry and one export-oriented sector. Section 5 concludes the paper.

2 A link to the relative literature

Why is international trade not free? There are two possible answers. The first emphasizes "terms-of-trade externality". The basic idea is that an incumbent government of a large country tries to set its import tariff in order to maximize its national welfare, thus the foreign exporter has to suffer from some of the burden imposed by such tariff. That is, such externality makes a large country biased against free trade and leads it to setting unilateral tariffs that are higher than is efficient.

The first attempt to explain tariff negotiation was put forth by H.G. Johnson (1953). In his seminal paper he emphasized that a country may gain by imposing a tariff, even if other countries employ retaliations, under the assumption that a government will maximize her national welfare. Based on this pioneering work, Mayer (1981) contributed a set of efficient tariff pairs within the framework of two countries, which includes free trade pairs. Later researchers also apply this theory to explain the purpose of a trade agreement[2].

In the early research stage, economists often assumed that a government only chooses tariffs to maximize her social welfare function. This is called the *Deus ex mechina* approach. Obviously there is a palpable shortcoming in this approach, in that it is in doubt when people touch the practical world. Recently, more and more researchers have come to agree that trade policy is chosen by the incumbent government, which is interested in more than social welfare. Namely, the government is also concerned about the distributional aspect. This idea provides another avenue to disentangle the puzzle that international trade is not free. Many economists analyze their models from various aspects. But all are concerned about the political pressure. This is called "political economic approach"[3].

[2] However, we do not consider the terms of trade since we focus on the economy of small open countries.

[3] Baldwin, R. (1987) provided a good survey of the link between these two approaches.

The first paper on the political economic approach was produced by Stigler (1971) and Peltzman (1976). They set up a model establishing the effect of political support motives on the determination of the regulated price, and that the price of a particular sector's output derives from the maximization by the authorities of a political support function. Inspired by this spirit, Hillman (1982) recommended that the optimum tariff is the solution to an optimizing problem where the incumbent government trades off political support from interest groups against the dissatisfaction of consumers. At the same time, Feenstra and Bhagwati (1982) constructed a case in which only a single industry is politically active while allowing both capital and labor factors to be employed in lobbying behavior. However, their model was also criticized for being non-explicit.

Shortly afterward, Mayer (1984) considered a model under the environment of direct democracy. Briefly speaking, he regarded trade policy as the outcome of majority voting over tariff schedules. Under Heckscher-Ohlin's framework, and by assuming that tariff revenue will be redistributed to the public along the lines of income, he offered the most favored tariff rate of the median voter. Though his model is elegant, there are very few countries which are direct democracies. Hence, its effect on explaining the real world is correspondingly weak.

Different from the median voter approach under the assumption of direct democracy, economists more favor the representative democracy in which an industry can form a lobby to impinge on the choice of a government's trade policy.

One of the most distinguished contributions to this comes from Magee, Brock and Young (1989). In their model, interest groups will make contributions to two different political parities in order to enhance their probability to win the election. Notice that one party is pro-trade while the other is anti-trade. By assuming that each lobby links to one party, they consider a two-stage game. In the first stage, political parties announce the tendencies of their potential policies. Then, in the second stage, interest groups choose different contribution schedules to influence the possibility of winning the election. By solving this game, the sub-game perfect Nash equilibria of the contribution schedules are the functions of the tariff policies.

Without any uncertainty, M-B-Y's model is one of the most important milestones of the political economic approach. But they still receive some criticisms. For example, Austin and Smith (1991) emphasized two flaws. First, the financial contribution is illegal in some countries; and the contribution is given in the form of information transmission rather than direct financial transfer. Second and most importantly, the use of probabilistic voting shows the lack of a rational-choice micro foundation. To respond to this censure, Mayer and Li (1994) provided a relative micro-foundation version for the M-B-Y model. In their paper, probabilistic voting is formally introduced, the conditions for active

lobbying are checked and the responses of different groups' lobbying to exogenous changes are argued. Their result, wherein different political parties may share an identical policy vector, is different from the standard M-B-Y model in which different parties will choose different policy platforms.

Another important development in theory is Grossman-Helpman (1994). In their model, a home government not only maximizes her national welfare but also is concerned about the contribution from each lobby. Interest groups make contributions only to the incumbent government in order to influence her trade policy. This is because they think the most important object of making contributions is a favored trade policy rather than the election outcome. This model is widely accepted now partly because it allows for the endogenous choice of policy in a general framework and partly because of the acceptable result that optimum tariffs are only determined by aggregate variables and the characteristics of the relative sector. Furthermore, their result can work on empirical predictions too.

Unfortunately, there exist several deficiencies in their model. First, the contribution still refers to financial transfer; hence they cannot provide satisfactory answers to the question from Austin and Smith. Second, as they recognized, themselves, the non-consideration of political competition is not acceptable. It is true that the major consideration in a lobby's giving is a favored trade policy; however, this does not mean that lobbies do not take the political election into account. Finally, in their model, as Rodrik (1995) pointed out, they still cannot disentangle the puzzle that trade policies always suffer trade volume.

In response to the criticism, specifically about political competition, Grossman-Helpman (1996) contributed another paper that surveyed the electoral competition. In that paper, they assume that the government is composed of two parties that try to maximize their representation in a legislature. To explain this framework, Grossman and Helpman hypothesize that both parties have fixed views on some issues while they vary their positions upon others in order to attract votes and campaign contributions. Both parties try to garner more seats in the parliament by setting different pliable policies. Under this setting, there are two kinds of voters: one is informed about both parties' fixed and pliable policies while the other is uninformed. Meanwhile, voters can form interest groups. Interest groups may have both influence motives and electorate motives to offer contributions to both parties. Furthermore, they allow the members of each lobby to have different attitudes about the motivations. After various interest groups simultaneously announce their contribution schedules, both parties choose their platforms of pliable policies in order to maximize their seating number. Finally, the equilibrium platforms and associated contributions together determine the election outcome, which in turn determines the probability that each party's platform will be elected.

Different from that paper, first, we will consider that interest lobbies make contributions to both the incumbent government and the challenger in order to influence the incumbent government's choice of trade policy. In this paper, though we recognize that such contribution may affect both the policy and the election outcome, we focus on the trade policy. Our model will affect the election outcome passively rather than actively. Hence, in this paper, the primary motive of a lobby's contribution is the favored trade policy rather than the election outcome. Secondly, we assume that all voters are well informed. They can form a lobby to affect the incumbent government's policy though they may reject doing so. However, the pace of members in each lobby should be united. Furthermore, two political parties will compete for the position in each election. The winner will obtain the position and the loser cannot do anything in the new government[4]. This assumption makes our model totally different from the setting in Grossman-Helpman (1996).

Next, we will consider such a political competition economy under a framework of bilateral direct investments. Foreign direct investment (FDI), or movements of specific factors among countries, is explained by many of the same features that affect trade such as factor endowments, transportation costs and increasing returns[5]. However, in this paper, we will focus on constant returns to scale. In particular, we allow foreign specific factor owners to make investments in the home country. At the same time, it is also allowed that home specific factor owners make investments abroad. Hence, the home lobby can make contributions to the foreign officeholder as well as to the home government, and vice versa for foreign lobbies.

Finally, since the export subsidy is generally prohibited in international trade agreements, we will set up a specific surrounding to discuss trade promotion and trade protection.

3 The model

Our first step is to provide an explanation of the structure of electorates and their lobbies, characteristics of BDI (Bilateral Direct Investments) and mutual contributions. Then we elucidate the objective function of the home incumbent government. Finally we solve the model and analyze the economic implications.

[4] In some democratic regimes, though a political challenger sits in the parliament and can vote for or against an incumbent government's policies, they cannot offer their own policy schedules.

[5] Zhang and Markusen (1999) argued that there are some reasons that firms wish to own the facility used for production rather than simply exporting to the other country. NBER working paper No.7315.

By assuming no distortions or externalities, we will consider bilateral direct investments within two small open countries. We will assume that there is no other foreign direct investment from the rest of the world[6].

3.1 Electorates

In our model, all citizens in a democracy have the inherent right to vote and have full information about the political parties in their country. There is no information asymmetry for any electorate. Furthermore, voters can form a lobby in order to affect trade policy though they may withhold from forming it. Without the loss of generality, the preferences of households are standard and exactly identical to Grossman and Helpman (1994). We allow the electorate of the small home country to share identical additively separable tastes. Individuals will maximize their welfare (utilities) subject to their budget constraints. Namely

$$\underset{x_0, x_1, \ldots x_{h+1}}{Max} \ \mathrm{U} = x_0 + \sum_{i=1}^{H} u_i(x_i) \tag{1}$$

Herein x_0 is a numeraire good, with a domestic and world price equal to unity. The sub-utility functions $u_i(x_i)$ have many nice properties. Namely, there are differentiable, increasing and strict concave. Notice that the budget constraint function is

$$x_0 + \sum_{i=1}^{H} p_i \cdot x_i = \mathrm{E} \tag{2}$$

Where E is the total income while $\mathrm{p_i}$ denotes the domestic relative price for each good *i*. Similarly, the fixed relative world price is denoted by p_i^w. By solving this constrained optimization problem, the first order condition is given by

$$\underset{x_0, x_1, \ldots x_{h+1}}{Max} \ \mathrm{U} = E - \sum_{i=1}^{H} p_i \cdot x_i + \sum_{i=1}^{H} u_i(x_i) \tag{3}$$

$$(\mathrm{F.O.C}) \ \mathrm{P_i} = u'_i(x_i)$$

The demand function is an inverse function of prices, in other words, the demand function is the inverse of $u'_i(x_i)$. By defining the vector of the domestic price of non-numeraire goods as $\mathbf{P} = (\mathrm{P_1}, \mathrm{P_2} \ \ldots \ \mathrm{P_h})$, we can deduce the indirect function V (**P**) and consumer surplus CS (**P**)

$$\mathrm{V}\ (\mathbf{P}) = \mathrm{E} + \mathrm{CS}\ (\mathbf{P}) \tag{4}$$

[6] By recognizing that such an assumption is strong, we could go further to consider two large countries with BDI. However, we reserve this topic as our next research paper.

$$\mathrm{CS}(\mathbf{P}) = \sum_{i=1}^{H} u_i(x_i) - \sum_{i=1}^{H} p_i \cdot x_i \tag{5}$$

3.2 Interest groups

Given that residents have the inherent right to vote, a subset of owners of the specific inputs used in sector *i*, may choose to join their force to influence the incumbent government policy by offering financial contributions in exchange for political benefits. More specifically, only the specific factor owners have the capability to form lobby groups, whereas both specific factor owners and employees are electorates. However, voters who do not form a lobby have no means to influence policy with their campaign contributions. The only possible approach for them to enter the political process is to serve as voters. In this paper, we will consider two possible extensions upon the lobby contributions: political competition and bilateral direct investments.

First, we will take into account that lobbies will contribute to any challenging candidates. The intuition is obvious. In a democracy, no officeholders can occupy the positions permanently. An incumbent government may lose votes in the following election and thus lose the position of power. There is no evidence or reason to believe that the successors will adopt policies identical to those of their predecessors. Meanwhile, lobbies try to sustain the favored policies to reap maximized benefits. They don't expect that the favored policy will be abandoned by the successor government. Hence, a tactful industry organizer will not only curry favor with the incumbent government, but also will make some contributions to the political challengers. To simplify our analysis, we suppose that there is only one political rival against the incumbent government. This makes sense to make a link to the real world. For example, there are two most powerful political counterparts in most democracies today, as well as in the United States and the United Kingdom, even though these countries allow many parties to exist.

Two interesting corresponding questions on "political competition" arise: why will a lobby contribute funding to the political candidate? And how could we measure its campaign volume?

Notice that interest groups only hope to influence the incumbent government's trade policy via their contributions though such donations may affect the election outcome indirectly. Hence, it is natural to ask why they will make contributions to the political challenger. Briefly speaking, for each interest group, the primary goal of making contributions to a political candidate is to get some more benefits if the challenger employs more favored policies after he wins the position.

It is harder for the political challenger to get campaign contributions compared with the current government since they do not have any power to employ or affect

policy. Thus, the challenger will deeply appreciate the lobbies that donate funding. In order to get the funding to improve his probability of winning the election, he would prefer to negotiate a contract with the lobbies guaranteeing that he will reimburse them specific benefits via the choice of trade policies or through other possible specific approaches[7] if he wins the election. In particular, a political candidate can guarantee that his trade policy will be better than the current trade policy chosen by the incumbent government for such a lobby. Given this political background, a far-sighted lobbyist will make contributions to the political candidate as well as to the incumbent government though maybe this will cause a net loss in the case that the challenger fails in the election.

This causes another question—which lobbies would make contributions to the political challenger and which would not? It is true that no one knows the result of the election before it begins. However, each lobby has their own belief (ρ_i) about each party's possibility of winning the election. According to these beliefs, they can decide the amount of contributions to the political challenger. Lobbies will weigh both the cost of these contributions and the expected benefit from this investment. If the cost is dominated by the expected benefit, rational lobbies will make contributions to the challenger, and vice versa.

Some additional explanations about this amount of contributions to the challenger would make more sense for our model. First of all, since a challenger has no power to affect the policy before the election, the campaign volume he receives cannot be embodied endogenously to be a function of policy. In other words, it makes more sense when we treat such a donation as a fixed and exogenous constant Z_i. Secondly, the contribution to the political candidate should be non-negative ($Z_i \geqslant 0$). This means that interest groups can offer resources[8] to the political challenger or withhold them, but can not levy taxes on such a challenger. Thirdly, the contribution to the political challenger should be no greater than the benefits that lobby could earn if the position of power is turned. More strictly, for each lobby, the contribution to the political challenger should be smaller than the expected benefits. For example, if the contribution cost to the political challenger for the lobby i is Z_i, then we have $Z_i \leqslant \rho_i \cdot [B_i(p_{current}) + S_i]$. Herein the first term of the benefits reimburse function in the bracket is a function of the current trade policies since the candidate guarantees that his trade policy will be better than that of the incumbent government. And the second term is a markup, which denotes some specific monopolistic rights.

Likewise, for the benefits return function, we have three more additional comments. Firstly and most importantly, we take into account the benefits return

[7] For example, he can grant the lobby some kinds of specific monopolistic rights in some fields.

[8] We allow that such resources could be financial funding or other very useful information for the political challenger.

for the lobby when a challenger wins the position. Recognize that interest groups will sign a contract with the challenger before the election. In such an unbroken contract, the challenger guarantees that he will reimburse the lobbyists some benefits if he wins the position while there is no return if he loses. This means that the return function will be amalgamated into the lobbies' utility function besides the donation to the political challenger.

Secondly, herein we do not need to restrict the form of the benefits return function ($R_i(P)$). Just as the contribution function ($C_i(P)$), it can take any specific form. This is true since it just depends on the specific contract between the political challenger and the lobby. And we will regard the benefits return function as a function of trade policy. This is because the incumbent government, who was the former political candidate if the position of power changed hands in the election, will choose the optimal tariff or subsidy to favor the interest groups and execute its promise in the contract with the relative lobbies.

Finally, though we do not provide the explicit form of the benefit reimbursement function, it is still safe to assume that this function includes two components: one is a specific fixed rebate (S_i) that is served as a markup; the other is a function of trade policies that the challenger will pick if he wins the election. Namely, we can view a benefit reimbursement function as $R_i(P) = B_i(P) + S_i$.

Now, compared to the lobby's function in Grossman & Helpman's model (1994), each lobby's utility function in our model will be changed into

$$V_i(P) = W_i(P) - C_i(P) - Z_i + I \cdot R_i(P) \qquad \forall i \in \Theta \tag{6}$$

Below is the implication of such an expression: for each lobby i, its utility level equals its total income deducting both the contributions to the incumbent government and the fixed constant campaign to the political challenger. Next, one needs to add the return function that is determined from the last election. Notice that $R_i(P)$ is the current government's benefits return while Z_i is the contributions to the political candidate today. I is an indicator function that can only be chosen between 0 and 1. If the position of power is changed in this election, or, the former challenger is the current government, then $I = 1$, and the lobby's utility level is the net income plus the promised benefits return function. If the position of power is not changed, then $I = 0$. This means that the investment in the political candidate is a loss for the lobby.

Thus far, we have formed and analyzed the lobby's utility function. Meanwhile, we recognize that the contributions to the political candidate will affect the election outcome indirectly. Obviously there is a positive relationship between the sum of the political contribution and the probability of winning the position of power for the political challenger. Formally, we have

$$\rho(I = 1) = H\left(\sum_{i \in \Theta} Z_i\right) = H\left(\int_{i \in \Theta} dZ_i\right) \in [0,1]$$

To be more precise, the likelihood of the challenger winning the political position ($\rho(I=1)$) will be a strictly increasing function of the total contributions from the relative interest groups ($\sum_{i\in\Theta} Z_i$). In theory, the number of lobbies can be continuous or discrete. But in practice, we always pick the discrete form. This means that the more contributions the challenger receives, the higher the probability of winning the position. Hence, in our model, though the primary motive of the contribution to a political candidate is to affect trade policies, it has a side effect for the election outcome.

3.3 Consumption, production and BDI

In the economies of our two small open countries, each country will face a fixed world price for $H+1$ final goods[9] while allowing good X_0 to serve as a numeraire good. Herein, the numeraire good X_0 can be produced from the labor factor alone with constant returns to scale, while labor is internationally immobile. Namely, $X_0 = l$. To guarantee that wages are a unity, we assume that the aggregate labor supply is sufficiently large to pledge a positive output of numeraire. At the same time, to produce each non-numeraire good, denoted as X_i, a single specific factor (T_i) is required as well as the labor (l) with the underpinning of constant returns to scale. Here the specific factors are mobile in the world. We can use the production function $X_i = F(l, T_i)$ to materialize such characteristics. F (.) is assumed to be constant return to scale subject to diminishing returns to each factor. According to the theory of standard microeconomics,by using Hotelling's lemma, the quantity of the supply of each non-numeraire good is given by

$$y_j = \pi_j'(p_j)$$

Notice that here the second order condition of the profit function with respect to the price is positive given its convex property. That is, we have $\pi_j''(p_j) > 0$. Finally, we define that the country's population includes one unit of individual ($N \equiv 1$), each of whom supplies perfectly inelastic l units of labor.

The next interesting thing is how to determine the amount of the gross-of-contributions combined with welfare W_i. Without the loss of generality, it will include consumer surplus, factor income and policy rent which come from the adoption of the preferred trade policy. From the above we know that the consumer surplus is $CS(\mathbf{P}) = \sum_{i=1}^{H} u_i(x_i) - \sum_{i=1}^{H} p_i \cdot x_i$. For the factor income, some more explanations are necessary.

[9] In this paper we ignore the consideration of intermediate goods.

Actually, for the home country's endowment, we have three different supplies of specific factors: domestic specific factors of production, domestically-employed foreign-owned factors of production and foreign-employed domestically-owned factors of production. Herein we define different sets of vectors as $\overline{\mathrm{T}} = [\overline{T}_1 \ldots \overline{T}_n]$, $\mathrm{T}^*[T_1^* \ldots T_n^*]$ and $\widetilde{\mathrm{T}} = [\widetilde{T}_1 \ldots \widetilde{T}_n]$, respectively. Then the total endowment of a specific factor i accessible for production is $T_i = \overline{T}_i + T_i^* - \widetilde{T}_i$. Similarly, the endowment of such a specific factor in the foreign country is $T_i^F = \overline{T}_i^F + \widetilde{T}_i - T_i^*$. At this juncture, given the assumption of constant returns to scale, we have zero profit property, and thus the factor income will be changed into $l_i + \pi_i(p) - \chi_i \cdot T_i^* + \lambda_i \cdot \widetilde{T}_i$. Wherein x_i is the return of a specific factor T_i^* and λ_i is the return of a specific factor $\widetilde{T}_i$[10]. Correspondingly, for the foreign country, the factor income is $l_i^F + \pi_i^F(p) - \lambda_i \cdot \widetilde{T}_i + \chi_i \cdot T_i^*$.

One may be confused about why bilateral direct investments would exist for one kind of product. Notice that the object of the foreign investment for specific factor owners is to reap higher rental return. However, the rental return of such factor is an endogenous function of trade policy[11]. It is unobservable before investment. Just for this reason, bilateral direct investments exist, since the owner cannot compare the return exogenously *ex ante*. This also explains why the owners of specific factors in one country want to form a lobby to influence another country's trade policy.

Finally, to evaluate the policy rents, the instruments of trade policy are just the import tariff (import subsidy if negative) and the export subsidy (export tariff if negative). Specifically, we don't consider other possible instruments of trade policy such as voluntary export restraint (VER)[12] or quota. Furthermore, the tariff herein is an ad-valorem tariff but not a specific one. Given this assumption, the relationship between the relative domestic price and the relative world price can be expressed as

$$p_i = \tau_i \cdot p_j^w = (1 + t_i) \cdot p_j^w$$
$$\text{and}$$
$$p_i^* = \tau_i^* \cdot p_j^w = (1 + t_i^*) \cdot p_j^w \tag{7}$$

Thus we have $\frac{dp_i}{dt_i} > 0$ and $\frac{dp_i^*}{dt_i^*} > 0$. Namely, the higher the protection level (tariff) is, the higher the relative domestic (foreign) price is, given that the relative

[10] Under the assumption of constant returns to scale, firms have zero profit. Namely, $p_j y_j = w l_j + \chi_j T_j = l_j + \chi_j[\overline{T}_j + T_j^*] - \lambda_j \widetilde{T}_j$. Thus, $\chi_j \overline{T}_j = p_j y_j - l_j - \chi_j T_j^* + \lambda_j \widetilde{T}_j$.

[11] This is because the interest rate is determined by the real money supply and money demand in the short run. However, the real money supply is a decreasing function of price level.

[12] For the effect of VER, Feenstra R. (1991) provided a good survey.

world price is fixed and determined by the rest of the world. Then the tax revenue (or, political rents) can be stated as

$$TR(p) = \sum_{i \in \Theta} (p_i - p_i^w) \cdot m_i(p) \tag{8}$$

wherein the quantity of imported goods i is defined by $m_i(p) = x_i(p) - y_i(p)$. Namely, in a small open economy, the total quantity demanded is the sum of the total home production and the import from the rest of the world.

Thus far, we can get the function of the gross-of-contributions combined welfare. It is given by

$$W_i(p, p^*) = \alpha_i \cdot [CS(p) + TR(p)] + l_i + \pi_i(p) - \chi_i(p) \cdot T_i^* + \lambda_i(p^*) \cdot \overline{T}_i \tag{9}$$

Here α_i is the proportion of the population that owns the specific input used in interest group i. Social welfare is the sum of various interest groups. Given that $\sum \alpha_i = 1$, the function of social welfare can be written as

$$W(p, p^*) = [CS(p) + TR(p)] + l + \sum \pi_i(p) - \sum \chi_i(p) \cdot T_i^* + \sum \lambda_i(p^*) \cdot \widetilde{T}_i$$

The reason that we view the home welfare function as a function of the foreign price is just to emphasize that home welfare is affected by foreign rental returns of specific factors, which is determined by the foreign price level.

3.4 Contributions

The second task of this paper is to check the trade effect in a non-cooperative game between two symmetric economies with the bilateral direct investments. To characterize this spirit into our model, we will not only allow foreign factor owners to structure lobby groups but also permit that home interest groups can form lobbies to influence foreign officeholders, too. We let H_i be the number of home representatives represented by lobby i, then we can denote $\alpha_\Theta \equiv \sum_{i \in \Theta} \alpha_i \leqslant 1$ to embody the fraction of the domestic voting population that owns some specific factors. In more details, $\Theta \in [1,\ldots,H]$. Similarly, we define the set of foreign interest groups actively lobbying the home officeholder. $\Theta^* \in [1,\ldots,H^*]$: $\alpha_{\Theta^*} \equiv \sum_{i \in \Theta^*} \alpha_i^* \leqslant 1$. To make things well located, we need to discern between the contributions donated by home lobby groups, those donated by foreign interest groups and the contributions abroad by home lobby groups. To measure the weight among them, the relative exogenous parameters will be assigned to them. In particular, β_1 is the relative proportion of the contributions donated by home lobby groups (denoted by $\overline{C}_i(P)$), while β_2 is the relative fraction of the donation from foreign lobby groups (denoted by $\overline{C}_i^*(P)$). The economic intuition is that for a dollar spent on contributions by a foreign lobby, the home government gets a

proportion of $\beta \equiv \beta_2/\beta_1$. Herein such a donation from foreign lobby groups is called foreign direct investment. We thus define the *gross contributions that are received by the home government* as

$$C(P) \equiv \beta_1 \sum_{i \in \Theta} \bar{C}_i(P) + \beta_2 \sum_{i \in \Theta^*} \bar{C}_i^*(P) \tag{10}$$

Two key points need to be emphasized. First, we define $\beta_1 \neq 0$. This means that the home political contributions always exist. Second, notice that the contributions abroad by home interest groups ($\widetilde{C}_i(P^*)$) are not involved in the gross contribution function. The reason for this is that this gross contribution function only evaluates the donation level that the domestic incumbent government receives.

Similarly for the small foreign country whose scale and sectors are the same as the home country in all aspects except for their supply levels. Home lobbies make contributions to the foreign officeholder in order to influence their trade policy. Hence, there is a similar setting for the gross contributions that are accepted by the foreign officeholder

$$C^*(P^*) = \delta_1 \sum_{i \in \Theta^*} \widetilde{C}_i^*(P^*) + \delta_2 \sum_{i \in \Theta} \widetilde{C}_i(P^*) \tag{11}$$

This means that for a dollar spent on contributions by a home lobby, the foreign officeholder gets a fraction of $\delta = \delta_2/\delta_1$. The object of the home lobby's contribution is to influence the foreign officeholder's trade policy.

Adopting all of these interpretations, we can materialize such spirits into the lobby's utility function.

$$V_i(P, P^*) = W_i(P) - \left[\bar{C}_i(P) + \tilde{C}_i(P^*)\right] - Z_i + I \cdot F_i(P) \tag{12}$$

Where $V_i(P, P^*)$ denotes the joint welfare of the members of interest group i, and W_i(P) expresses their gross-of-contributions combined with welfare. And $\bar{C}_i(P) + \widetilde{C}_i(P^*)$ item articulates the amount of contributions which the home lobby makes to the home incumbent government and the current foreign officeholder. All of the other variables were introduced before. Recognize that wherein we ignore the possibility that home lobby groups may donate to the prospective foreign officeholder[13].

Thus far, to make it easier to understand, we can describe our model by using a framework as below

[13] Actually, the result will be the same even if we consider the political competition in the foreign country.

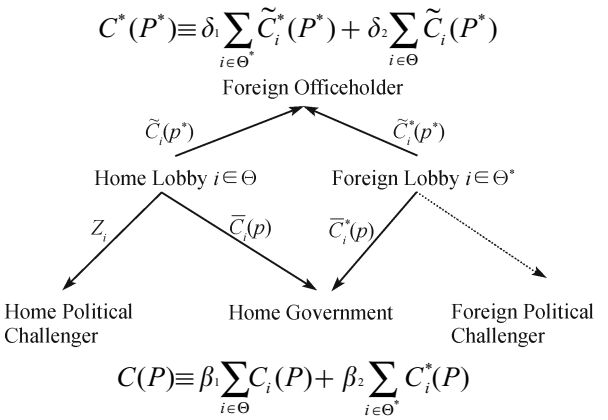

Fig. 1 The framework of lobbies' contributions

Notes: The bold lines describe the relationships we investigate here. Home interest group i donates the contributions to the home incumbent government, the home political challenger and the foreign officeholder. Notice that the gross contributions that the incumbent government receives are $C^*(P^*) \equiv \beta_1 \sum_{i \in \Theta^*} \widetilde{C}_i^*(P^*) + \beta_2 \sum_{i \in \Theta} \sim C_i(F.$ Correspondingly, the foreign officeholder will receive contributions $C(P) \equiv \delta_1 \sum_{i \in \Theta} C_i(P) + \delta_2 \sum_{i \in \Theta^*} C_i^*(P)$ though we ignore foreign political competition.

3.5 Incumbent government

Now we can examine the government's welfare function. Compared to Grossman and Helpman (1994), the incumbent government's objective function will be a little different since the political competition is considered here. The incumbent government's objective function will not only include the aggregate electorates' welfare, and the level of the total political contributions but also the deduction item of the reimbursement of their promised benefits to each lobby.

In this paper, just like Grossman and Helpman (1994), we derive a political support function from the equilibrium action of profit-maximizing interest groups. The incumbent government not only maximizes her aggregate welfare over all voters but also considers the total contributions from interest groups. More importantly, according to the unbroken contract signed between each lobby and the political candidate before the election, the incumbent government has to deduct the benefits return to each relative lobby if she was the political candidate before winning the position. Alternatively, she will not deduct anything if she sat in the position the last time.

To characterize this spirit, we attempt to pick a new form of government's objective function. Herein, we place another assumption that the government's consideration of one dollar of social welfare compared to a dollar of campaign

contribution is the same as that compared to a dollar of political benefits return. Thus, it is safe to hypothesize a linear form for the incumbent government's objective function. Namely

$$\Psi(P) = a \cdot W(P) + C(P) - I \cdot \sum_{i \in \Theta} R_i(P) \tag{13}$$

Where $a \geqslant 0$, it denotes the incumbent government's "political bias"—the higher it is, the lower the government's preference for contributions with respect to social welfare is. Recall that we already have: $\mathrm{C}(\mathrm{P}) \equiv \beta_1 \sum_{i \in \Theta} \bar{C}_i(P) + \beta_2 \sum_{i \in \Theta^*} \bar{C}_i^*(P)$. In other words, the level of gross contributions is comprised of domestic contributions and their foreign counterparts. I is the same indicator function as that in the lobby's utility expression. In particular, if the position of power does not change hands, then the government objective function is

$$\Psi = a \cdot W(P) + C(P) = a \cdot W(P) + \beta_1 \sum_{i \in \Theta} \bar{C}_i(P) + \beta_2 \sum_{i \in \Theta^*} \bar{C}_i^*(P)$$

On the other hand, if the former challenger now wins the position, then the function will be

$$\Psi = a \cdot W(P) + \beta_1 \sum_{i \in \Theta} \bar{C}_i(P) + \beta_2 \sum_{i \in \Theta^*} \bar{C}_i^*(P) - \sum_{i \in \Theta} F_i(P)$$

3.6 Three-stage non-cooperative game and the equilibrium

Thus far, we have described the fundamental characteristics of electorates, lobby groups and the incumbent government. And the game we study here is a simultaneously-moving, three-stage and non-cooperative one.

The timing follows the rules below. First, the lobby chooses the fixed level of contributions to the political challenger and signs a contract with the challenger before the election. Second, interest groups choose their own levels of political contribution to the incumbent government. Finally, in the third stage, the home government will set down the international trade policy after they enjoy the contributions that come from home lobbies and foreign interest groups.

The order of the game is extremely important. We agree that the possibility of winning a position positively associates with the distribution of contributions between two political parties. This does not mean lobbies will regard the improved opportunity of a party as a primary consideration in their donation. Hence, different from the M-B-Y model in which parties claim their plans first and then lobbies decide their contributions, in our model, lobbies decide their levels of contributions first though they also donate funding to the political candidate.

Clearly, in this model we have to face a *common agency problem*. Namely, it is a heavy burden for an agent to execute an action when many principals endeavor to provoke a unique agent to take such an action. Fortunately, Bernheim and Whinston (1986) employed a menu auction to figure out the equilibrium outcome. The description of the equilibrium is tailored for the context via Grossman &Helpman and many other successors.

To discover the sub-game perfect equilibria for this game, we need to employ backward induction. Before beginning from the third stage, notice that in this paper equilibria are restricted to the interior price vector $\boldsymbol{P}$.

Proposition 1 (Bernheim-Whinston and Grossman-Helpman):

An equilibrium trade agreement is composed of sets of political contribution schedules $[\bar{C}_i(P^o)]_{i\in\Theta}$, $[\bar{C}_i^*(P^o)]_{i\in\Theta^*}$, $[R_i(P^o)]_{i\in\Theta}$ *and a vector of international trade policy* P^o *such that*

(i) $[\bar{C}_i(P^o)]_{i\in\Theta}$, $[\bar{C}_i^*(P^o)]_{i\in\Theta^*}$ *and* $[R_i(P^o)]_{i\in\Theta}$ *are feasible for all* $i{:}\forall i \in \{\Theta, \Theta^*\}$

(ii) P^o *maximizes* $\Psi(p): P^o = \arg\max\left\{a\cdot W(P,P^*) + C(P) - I\cdot\sum_{i\in\Theta} R_i(P)\right\}$

specifically, we have

$$P^o = \arg\max\left\{a\cdot W(P,P^*) + \sum_{i\in\Theta}\bar{C}_i(P) + \beta\sum_{i\in\Theta^*}\bar{C}_i^*(P) - I\cdot\sum_{i\in\Theta} R_i(P)\right\}$$

(iii) P^o *maximizes the joint welfare between each lobby and the home government. Namely*

$$W_i(P^o,P^*) - \left[\bar{C}_i(P^o) + \tilde{C}_i(P^*)\right] - Z_i + I\cdot R_i(P^o)$$
$$+\left[a\cdot W(P^o,P^*)\sum_{i\in\Theta}\bar{C}_i(P^o) + \beta\sum_{i\in\Theta^*}\bar{C}_i^*(P^o) - I\cdot\sum_{i\in\Theta} R_i(P^o)\right]$$

and

$$W_i^*(P^o,P^*) - \bar{C}_i^*(P^o) - \tilde{C}_i^*(P^*)$$
$$+\left[a\bullet W(P^o,P^*) + \sum_{i\in\Theta}\bar{C}_i(P^o) + \beta\sum_{i\in\Theta^*}\bar{C}_i^*(P^o) - I\cdot\sum_{i\in\Theta} R_i(P^o)\right]$$

are each maximized over $\boldsymbol{P}\ \forall i \in \{\Theta, \Theta^*\}$

(iv) $\forall i \in \{\Theta, \Theta^*\}$, *there exists a policy outcome* $\hat{p} \in P$ *that maximizes* $\Psi(p)$ *on* $\boldsymbol{P}$ *but* $\bar{C}_i(\hat{p}) = 0$. *Likewise, there is a policy outcome* $\check{p} \in P$ *that maximizes* $\Psi(p)$ *on* $\boldsymbol{P}$ *but* $\bar{C}_i^*(\check{p}) = 0$.

The explanations of such equilibrium conditions are provided below. The first condition means that the contributions should be nonnegative and are weakly

smaller than the total income for each lobby. Again, herein $[\bar{C}_i(P^o)]_{i\in\Theta}$ denotes purely domestic contributions. And $[\bar{C}_i^*(P^o)]_{i\in\Theta^*}$ means that the donation is from each foreign lobby to the home government. Meanwhile, $[\tilde{C}_i(P^*)]_{i\in\Theta}$ measure the contributions from the home lobby to the foreign officeholder in order to influence foreign policy (herein we assume two small countries). Similarly, $[\tilde{C}_i^*(P^*)]_{i\in\Theta^*}$ are the contributions abroad. Notice that condition (*ii*) emphasizes that the home incumbent government performs optimally.

At the same time, condition *(iii)* promises that the equilibrium price vector should maximize the combined welfare of that lobby and the incumbent government. Actually $W_i(P^o,P^*)-\left[\bar{C}_i(P^o)+\tilde{C}_i(P^*)\right]-Z_i+I\cdot F_i(P^o)$ is lobby *i*'s optimized welfare and $a\cdot W(P^o,P^*)+\sum_{i\in\Theta}\bar{C}_i(P^o)+\beta\sum_{i\in\Theta^*}\bar{C}_i^*(P^o)-I\cdot\sum_{i\in\Theta}F_i(P^o)$ denotes the incumbent government's optimized welfare. Notice that since the two countries are small ones, one's choice of tariff can affect neither the world price nor the counterpart's price. Or say, $\frac{\partial\tilde{C}_i(P^*)}{\partial P}=\frac{\partial\bar{C}_i^*(P)}{\partial P^*}=0$ and $\frac{\partial W_i(P,P^*)}{\partial P}=\frac{\partial W_i(P)}{\partial P}$.

Finally, condition (*iv*) means that the contribution schedule that each lobby provides will truthfully reveal its taste when we take into account the government's objective function.

Now one is ready to deduce the equilibrium price level. First of all, by taking the differentiation, from condition (*ii*) we can get

$$a\cdot\nabla W(p^o)+\sum_{i\in\Theta}\nabla\bar{C}_i(p^o)+\beta\cdot\sum_{i\in\Theta^*}\nabla\bar{C}_i^*(p^o)-I\cdot\sum_{i\in\Theta}\nabla R_i(P^o)=0 \tag{14}$$

Meanwhile, substitute (14) into the first order conditions of the first module in condition (iii), we get

$$\nabla W_i(P^o)=\nabla\bar{C}_i(P^o)-I\cdot\nabla R_i(P^o) \tag{15}$$

Then, by taking the sum on both sides of (15), and plugging expression (14) into the new sum function, we get

$$\sum_{i\in\Theta}\nabla W_i(P)=-a\cdot\nabla W(P)-\beta\sum_{i\in\Theta^*}\nabla\bar{C}_i^*(P) \tag{16}$$

Likewise, differentiate the second module in condition (iii)

$$\nabla W_i^*(P)=\nabla\bar{C}_i^*(P) \tag{17}$$

Thus far, by taking (16) and (17) together, it is safe to illustrate equilibrium trade policy. Actually, the step to deduce the optimum tariff / subsidy from now

on is very similar with E. Blanchard (2002) except that now we allow bilateral direct investments rather than FDI only.

Proposition 2: *When the political competition is considered as well as bilateral direct investments, the equilibrium ad valorem import tariff or export subsidy is inversely related to the price elasticity of import demand (or export supply) and the government's weight on social welfare. Formally, by restricting the interest groups' donation schedules that are differentiable around the equilibrium point and interior solution, then the expression for the home optimum tariff on good i can be measured as*

$$t_i^o = \frac{(\zeta_i - \alpha_\Theta) y_i}{-(a+\alpha_\Theta) P_i^w m_i'(P^o)} + \frac{(a+\zeta_i - \beta\zeta_i^*)\chi_i T_i^*}{(a+\alpha_\Theta) P_i^w m_i'(P^o)} \tag{18}$$

Where the indicator variable $\zeta_i = 0(\forall i \notin \Theta)$ *if the domestic factor owners of industry i are unorganized; likewise,* $\zeta_i^* = 0(\forall i \notin \Theta^*)$ *if the foreign owners of industry i are unorganized either.* T_i^* *is the foreign direct investment.*

(Proof in Appendix 1)

Corollary 1: *Similarly, for the foreign country, its optimum tariff is determined by*

$$t_i^{*o} = \frac{(\zeta_i^* - \alpha_{\Theta^*}) y_i^*}{-(b+\alpha_{\Theta^*}) P_i^w m_i'(P^{*o})} + \frac{(b+\zeta_i^* - \delta\,\zeta_i)\lambda_i \tilde{T}_i}{(b+\alpha_{\Theta^*}) P_i^w m_i'(P^{*o})} \tag{19}$$

Where b is the weight between the foreign national welfare and the contribution schedules which the foreign officeholder receives; λ_i *is the return of specific factors in the foreign country,* δ *is the weight between the foreign lobby's contribution and the home lobby's contribution. Finally, indicator function* ζ_i^* *has a similar definition as* ζ_i.

(Proof in Appendix 2)

The implications of these results are prosperous. To check their economic intuition, first of all, let us assume no bilateral direct investments. Namely, only the domestic lobby can make contributions to the domestic government and the political candidate. Then we have $\widetilde{T}_i = T_i^* = 0$. In the home country, this therefore means

$$t_i^o = \frac{(\zeta_i - \alpha_\Theta) y_i}{-(a+\alpha_\Theta) P_i^w m_i'(P^o)} \tag{20}$$

The expression (20) is exactly the same as the inverse Ramsey rule of Grossman-Helpman (1994). Namely, the higher the elasticity of the import demand is, the lower the import tariff is. However, notice that now we have taken the political competition into the model!

Furthermore, if there are no interest groups, and if the fraction of the domestic voting population that owns specific factors is zero, or say $\zeta_i = 0$ and $\alpha_\Theta = 0$,

then the optimum tariff is zero. This means that free trade is the best choice for small countries if we do not consider political intervention.

Proposition 3: *Before each election, suppose that interest groups sign an unbroken contract with the political challenger. Then interest groups make contributions to both the incumbent government and the political challenger in order to sway the trade policy. We can derive the same inverse Ramsey rule as Grossman-Helpman (1994). Say the less the weight placed on national welfare, the higher the production in a specific sector, the less elastic the foreign import demand or export subsidy, the higher the home import tariff.*

Under this setting, we recognize that the primary motivation of contributions is to influence government in the choice of the favored policy. It is still necessary to make contributions to the political candidate in order to fit with the real world. By assuming that there is an unbroken contract between interest groups and the political challenger, we restrict that the contribution is an exogenous financial constant amount while allowing that its benefits reimbursement function is implicit. Therefore, we can get the revised Ramsey relationship between the optimum tariff and other relative coefficients.

Now we switch to the discussion of bilateral direct investments. Recently, Blanchard (2002) emphasized that there is an expropriation effect on foreign direct investment. Namely, the home incumbent government has a tendency to move the costs of lowering consumer prices onto foreign firms by decreasing the import tariffs to those sectors with foreign owned factors of production. Furthermore, she showed that the optimal tariff protection decreases with the percentage of foreign ownership. Correspondingly, if we allow for bilateral direct investments within two small countries, then we can still find that the optimal tariff has a negative relationship with the foreign direct investment. To see this, we focus on two extreme cases. First, $T_i^* = 0$, this means that foreign direct investment in the home country is nil. According to the expression (18), we can get the Grossman-Helpman rule (20). At the other end of the spectrum, if $T_i^* = T_i$, then the optimal tariff or subsidy will be

$$t_i^o = \frac{(\beta - \alpha_\Theta - a) y_i}{-(a + \alpha_\Theta) P_i^w m'_i(P^o)} \tag{21}$$

We can find that the tariff level in (21) is smaller than that in (20). Hence, within bilateral direct investments, the optimal tariff schedules have negative relationships with the direct investment level.

4 Trade promotion or trade protection?

Just as Grossman-Helpman's model (1994), which cannot explain why we universally observe that trade policy always helps import-competing producers

rather than export-oriented producers, even after we add political competition into their model, our model still faces such a question[14]!

Why trade policies are universally biased against trade is still an open question for international economists though some have made contributions to this topic[15]. Recently, one important attempt has been made by Levy (1997). He considered two large symmetric economies using the Grossman-Helpman framework in cooperative and non-cooperative environments. He concluded that cooperation between governments is sustained by the threat of punishment in future periods. In his paper, by assuming only two products in two large countries, he was assured that for a home import good, there is trade promotion if the difference between the tariffs of two countries is positive.

Under our setting of two small countries, it is impossible to measure the net trade promotion or protection directly here. The reason is that the difference between the tariffs of one product of two small countries (or subsidies) can not denote the total trade position (i.e., promotion or protection) in the world. To avoid such a trap, we need to focus on some special cases in order to consider the trade position.

First, we assume that there are only two products in the home country, wherein product 1 is an import and product 2 is an export. Product 1 is mostly provided by the rest of the world. Second, we just check the trade position without the instrument of the export subsidy.

The assumption of a prohibited export subsidy makes sense when we try to link to the real world. Article XVI of GATT (1994)[16] articulates that export subsidies are not allowed except for agriculture. In fact, the Agriculture Agreement also prohibits export subsidies on agricultural products unless the subsidies are specified in a member's list of commitments. Where they are listed, the WTO members have to cut both the quantity of the export that receive subsidies and the amount of money they spend on export subsides.

Now, given that the rest of the world can not provide any export subsidy for product 1 ($t_1^{ROW} = 0$), we go back to the original expression (18)

$$t_1^o - t_1^{ROW} = t_1^o = \frac{[\zeta_1 - \alpha + (a + \zeta_1 - \beta) \cdot T_1^* / T_1] y_1}{-(a + \alpha) P_1^w m_1'} \tag{22}$$

[14] This is another topic we hope to research into later.

[15] Brainard and Verdier (1993) constructed a dynamic version of Grossman-Helpman's model (1994) to emphasize that sectors that have high protection today will have higher protection tomorrow.

[16] For detailed rules of subsidy, please check http://www.wto.org/english/docs_e/legal_e/final_e.htm.

Furthermore, we assume there is no transportation cost ($\beta = 1$) from the foreign direct investment. For the representative industries, since $\zeta_1 = 1$ and import good volume is positive ($y_1 > 0$), the optimal tariff is determined by

$$t_1^o = \frac{[1 - \alpha + a \cdot T_1^* / T_1] y_1}{-(a + \alpha) P_1^w m_1'}$$

From this expression, by observing $\alpha \in [0,1]$ and $a \geqslant 0$, the left hand side should be positive if the foreign direct investment is non-negative ($T_1^* \geqslant 0$). In other words, if we ignore the export subsidy, there exists trade protection under the framework of the two sectors if the home country can receive foreign direct investment.

Proposition 4: *Within the economies of small home countries, if the export instrument is prohibited and foreign direct investment exists, then, for the producers who can form a lobby in the import sector, there exists trade protection.*

However, for the unrepresentative producers, whether there is trade promotion or trade protection depends on the relative weight of FDI out of the total specific factor input. When the home country does not have FDI (FDI = 0), the optimal trade policy for such producers in the import sector is the import subsidy. Namely $t_1^0 < 0$ since

$$t_1^o = \frac{-\alpha \cdot y_1}{-(a + \alpha) P_1^w m_1'}$$

On the other hand, the import tariff in the home import sector will exist when $a \cdot T_1^* / T > \alpha$.

Proposition 5: *If the export instrument is prohibited and no foreign direct investment exists, then, for the small home producers who cannot form a lobby in the import sector, there exists trade promotion.*

Thus far, it is safe to conclude our findings. Suppose two countries are small and symmetric while the governments are non-cooperative, then for the import industry, whether there is trade promotion or trade protection is contingent under the environment of the bilateral direct investments. Under the assumption of the instrument of the prohibited export subsidy, unrepresentative industries have trade promotions with zero FDI while representative sectors win trade protection with active FDI.

5 Conclusion

In this paper, we try to survey two basic questions about international political economics. First, why is trade not free in practice? Second, if trade policies are

necessary and always biased against trade, what are the conditions of trade promotion and trade protection?

For the first question, one promising avenue is to explore the political basis for trade policies. The model of Grossman-Helpman (1994) is an important milestone explaining this question. In this paper, based on their model, we try to add political competition to their original framework. We emphasize that home interest groups may contribute to both the incumbent government and the current political challenger to influence current trade policies. Given the assumption of an unbroken contract signed between each lobby and the political challenger, our modified version yields the same result as Grossman-Helpman (1994).

For the second question, though we cannot disentangle this puzzle that trade policies are universally biased against trade, we survey the necessary conditions for trade promotion and trade protection under a specific framework. To match the general rules in GATT, by ruling out the export instrument, we find that lobbies will win trade protection under the assumptions of active FDI. However, the unrepresented sectors will promote trade if FDI is unavailable.

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Appendix 1: Proof of proposition 2

(1) by taking (16) and (17) together, we could get

$$\sum_{i\in\Theta}\nabla_P W_i(P,P^*) = -a\cdot\nabla_P W(P,P^*) - \beta\sum_{i\in\Theta^*}\nabla_P W_i^*(P,P^*) \tag{A0}$$

Recall that we know $\dfrac{\partial W_i(P,P^*)}{\partial P} = \dfrac{\partial W_i(P)}{\partial P}$, and also have

$$\begin{aligned}\nabla_p W_i(p^o) &= \pi'_i(p) - \chi'_i(p_i)\cdot T_i^* + (m_i - u'_i(x_i)) + (p_i - p_i^w)\cdot m'_i(p_i)\\ &= (y_i + m_i - d_i) - \chi'_i(p_i)\cdot T_i^* + (p_i - p_i^w)\cdot m'_i(p_i)\end{aligned}$$

Thus, it is safe to deduce since the first term in the expression above is zero

$$\nabla_p W_i(p^o) = (p_i - p_i^*)\cdot m'_i(p_i) - \chi'_i(p_i)T_i^* \tag{A1}$$

(2) by recognizing that

$$W_i(p) = \alpha_i\cdot[CS(p) + TR(p)] + l_i + \pi_i(p) - \chi_i\cdot T_i^*$$

It is easy to check

$$\sum_{i\in\Theta}\nabla_p w_i(p^o,p^*) = (I_i - \alpha_\Theta)\cdot y_i(p_i) + \alpha_\Theta(p_i - p_i^w)\cdot m'_i(p_i) - I_i\chi'_i(p_i)T_i^* \tag{A2}$$

Wherein $I_i = 1$ if and only if industry $i\in\Theta$, likewise $I_i^* = 1$ if and only if sector $i\in\Theta^*$.

Likewise, we have

$$\sum_{i\in\Theta^*}\nabla_p W_i^*(p^o,p^*)=I_i^*\chi'_i(p_i)T_i^* \tag{A3}$$

(3) we can get the expression (18) by replacing the relative item in expression (A0) with (A1), (A2) and (A3) together

$$t_i^o=\frac{(\zeta_i-\alpha_\Theta)y_i}{-(a+\alpha_\Theta)P_i^w m_i'(P^o)}+\frac{(a+\zeta_i-\beta\zeta_i^*)\chi_i T_i^*}{(a+\alpha_\Theta)P_i^w m_i'(P^o)} \tag{18}$$

(Q.E.D)

Appendix 2: Proof of corollary 1

The proof is exactly identical to the proof of proposition 2 except using different notations.