Uniform Versus Discriminatory Tariffs: When Will Export Taxes/Subsidies Be Used for Differentiated Products?

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Abstract

We analyze the non-cooperative interactions between two foreign exporting countries producing two differentiated products and one domestic importing country when all governments use optimal policies to maximize their welfare. For identical exporting countries we demonstrate that the domestic importing country always prefers a uniform tariff regime for any degree of product differentiation while the two exporting countries prefer a discriminatory tariff regime.

Keywords: MFN Clause, product differentiation, Cournot competition, discriminatory tariffs.

JEL-Classification: **F12, F13**

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I. Introduction

When the market is imperfectly competitive, firms obtain a positive profit. The positive profit in the imperfectly competitive market is a pretext for government intervention. It is now well understood that unilateral intervention in the imperfectly competitive market is a welfare-enhancing policy (see Brander(1995), Brander and Spencer (1984), Brander and Spencer (1985)). According to models of strategic trade policies in which firms are immobile in a framework of imperfect competition, there is a welfare gain for the domestic country to intervene in the economy to shift rents to the firm in its jurisdiction. One formula, which is suggested in the literature to get ride of the unilateral strategic trade policy among countries is free trade since everyone would be better off if nobody intervened. One-step toward creating a free-trade environment is to impose harmonised international rules on the nations involved in international trade by supranational institutions like GATT/WTO. One of these rules is called Most Favoured Nation (MFN) clause. The MFN clause is an important part of all multilateral trade agreements. Horn and Mavroidis (2001) and Hoekman and Kostecki (2001) mention that MFN is one of the pillars of the WTO system. At the core of MFN is the idea of non-discrimination or symmetric treatment for all[1]. In other words if country A grants country B MFN status, it simply agrees to treat country B no worse than any other country. Thus, it is natural to ask whether a regime of MFN tariff is better or worse than the tariff discrimination regime.

Gatsios (1990) and Hwang and Mai (1991) investigated the optimal discriminatory tariffs if two foreign firms are located in two different countries. They demonstrate that importing countries prefer to impose discriminatory or preferential tariffs rather than uniform tariff across different countries because of different production costs. This result is not surprising because importing country have two instruments in the discriminatory tariff regime compared with just one instrument with uniform tariff regime. A more interesting result is that the tariff on the low-cost producing country should be higher than that on the high-cost producing country. Therefore, with discriminatory tariffs, the total cost (marginal production cost plus specific tariff) differential between countries become smaller. In terms of production efficiency, production is diverted from the more efficient to the less efficient country under discriminatory tariff regime. The consequences of enforcing the uniform tariff regime, imposing the MFN principle, will be an overall production efficiency with distributional effects favouring the cost-efficient country.

So far almost all of the above-mentioned literature has assumed that both exporting countries are inactive international domain. Hence it is important to ask whether the conclusion drawn remain valid when both governments are active in exporting countries. Liao and Wong (2006) have allowed all three governments (two exporter and an importer) to be active in terms of choosing optimal policy which maximizes their welfare. For symmetric exporting countries producing perfect substitute goods, they find that the importing country would choose a uniform tariff regime, whereas the exporting countries would prefer a discriminatory tariff regime. Thus the main motivating question at this stage is whether the above conclusions remain robust to the extension to differentiated product.

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[1] Although the GATT/WTO prohibits discriminatory import tariffs, the means for such policy exists within GATT/WTO rules. For example, discriminatory tariffs can be imposed through the enforcement of anti-dumping duty laws. Hence there are many ways by which the WTO/GATT's ban on discriminatory import tariffs can be and is circumvented.

In this paper, we analyze the welfare effect of the two different tariff regimes: a uniform tariff regime, as requires by the most-favoured-nation (MFN) clause of GATT/WTO, and a discriminatory tariff regime. By constructing this model we try to answer the following questions: how might the non-cooperative export subsidy of the exporting countries affect the tariff rates and tariff regime chosen by the importing country? Does exporting country still pays subsidy to its firm (as proposed by Brander and Spencer (1985) and others) by knowing the fact that the importing country is not silent anymore? What is the optimal tariff of the importing country in response to the optimal export subsidy/tax of the exporting countries? Does the optimal export subsidy depend on the tariff regime chosen by the importing country?

Some of the results obtained in this paper can be compared with the present literature. Under a uniform tariff regime, Liao and Wong (2006) prove that the exporting countries subsidies their firms to shift rent from the domestic importing country for perfect substitute goods. We prove that their result is robust if goods are nearly perfect substitutes. However, their result is not valid if goods are sufficiently differentiated. For symmetric exporting countries we prove that the importing country prefers uniform tariff regime while both exporting countries prefer discriminatory tariff regime.

In this paper we shall follow Liao and Wong (2006) to assume that the importing country chooses the tariff regime before tariff rate on the pretext that it is easier for the importing country to set its tariff rate than its tariff regime. This assumption represents the importing country's international commitment to choose a tariff regime (either to follow the MFN clause of GATT/WTO or to follow discriminatory tariff) which cannot be changed so easily.

The paper is structured as follows. In section II we describe the model used in this paper. Section III and IV analyze the equilibrium of the game under a uniform tariff regime and a discriminatory tariff regime, respectively. Section V contrasts the two tariff regimes in terms of the welfare of all three countries in a symmetric world. Section VI concludes.

II. The Model

The basic structure of the model is adopted from Liao and Wong (2006) and Hwang and Mai (1991). The main difference between this study and Liao and Wong (2006) is that they analyze Cournot competition with homogenous products while we mainly focus upon differentiated product. The difference between this study and Hwang and Mai (1991) is that they consider Cournot competition for differentiated products with inactive exporting governments while we let the exporting countries to be active in the international domain.

The economy consists of three-country, two-firm producing differentiated products. Domestic country imports differentiated product from foreign countries labelled 1 and 2, respectively. For simplicity, we assume that the domestic country does not produce and also the foreign countries do not consume these products. It is assumed that the domestic government understands the structure of the oligopolistic industry and is able to set credible tariffs on imports. Throughout the paper we consider only the case of specific tariff. [2] The demand side of the model in the domestic country is derived from the utility maximisation problem of a representative

[2] This is done for analytical simplicity. Note that in the competitive case, specific and ad valorem tariffs lead to the same outcomes, while under imperfect competition they lead to different outcomes.

consumer whose net benefit function is given by $U = u(q_1, q_2; \gamma) + Z$, where Z is a competitive numeraire good, $u = q_1 + q_2 - (1/2)(q_1^2 + 2q_1q_2\gamma + q_2^2)$ and γ is a parameter indicating the strength of product differentiation ($\gamma \in [0.1]$) [see Tirole(1990)]. As γ approaches zero, the products become more differentiated and in the limit ($\gamma = 0$), the products become independent. As γ approaches one, the products become more homogeneous, and in the limit ($\gamma = 1$) the products become perfect substitutes.

From the utility function, it is straightforward to derive the inverse demand function:

$$p_1 = 1 - q_1 - q_2\gamma \qquad (1)$$

$$p_2 = 1 - q_2 - q_1\gamma \qquad (2)$$

in the region of quantity space where prices are positive..

Firm i has a constant marginal cost, c_i, and a fixed cost, F_i. Since we do not deal with firm's entry, for simplicity, fixed costs F_i is set to zero. All technology and demand information is known to all parties.

The governments of all three countries choose their choice variable to maximize the welfare of their countries. In other words, the government of each exporting country considers an export subsidy/tax while the government of the importing country chooses a tariff/subsidy to maximize its welfare. To analyze the interactions among governments, we consider the following four-stage non-cooperative game. In the first stage, the domestic importing country announces whether it is using a uniform tariff regime or a discriminatory tariff regime. In the second stage, the two foreign exporting countries choose their export subsidies/taxes, s_1 and s_2, simultaneously and non-cooperatively to maximize their welfare. In the third stage, after observing the export subsidies/taxes, the domestic importing country imposes tariffs according to the tariff regime it announced in the first stage. We assume that all government announcements are credible and cannot be reversed. In the fourth stage the two firms compete in the domestic market in the Cournot fashion. In what follows, we analyze the two tariff regimes separately. The two regimes are then compared in terms of the welfare of the domestic importing country and the welfare of the foreign exporting countries.

III. Optimal Export Subsidy Policy Under Uniform Tariff Regime

We shall denote the uniform specific tariff rate imposed by the domestic government by $\bar{t}$. The game is solved by backward induction and subgame perfect Nash equilibria can be derived. In this section we concentrate on the case of Cournot competition in the last (output) stage of the fourth-stage game. Given the policy regime announced by the domestic government in the first stage, the subsidies by the foreign governments in the second stage and tariff chosen by the domestic government in the third stage, firm i chooses q_i to maximize

$$\pi_i = (p_i - c_i + s_i - \bar{t})q_i \qquad (3)$$

By solving the two first-order conditions simultaneously, we can drive the Cournot equilibrium outputs $q_1^*(s_1, s_2, \bar{t})$ and $q_2^*(s_1, s_2, \bar{t})$ as follows

$$q_1 = \frac{\bar{t}(\gamma - 2) - (\gamma - 2) - 2c_1 + \gamma c_2 + 2s_1 - \gamma s_2}{4 - \gamma^2} \qquad (4)$$

$$q_2 = \frac{\bar{t}(\gamma - 2) - (\gamma - 2) - 2c_2 + \gamma c_1 + 2s_2 - \gamma s_1}{4 - \gamma^2} \qquad (5)$$

it is clear that the uniform tariff affects negatively the output of each firm, while each export subsidy will expand its country's export but reduce the export of the other country.

In the third stage, the importing country chooses $\bar{t}$ to maximize its welfare function. Note that the social welfare for the domestic country is defined as the sum of consumer surplus and the total government tariff revenue, that is,

$$W = u(q_1^*, q_2^*) - p_1^* q_1^* - p_2^* q_2^* + \bar{t}(q_1^* + q_2^*) \qquad (6)$$

the solution for the problem at this stage is

$$\bar{t} = \frac{2 + (s_1 - c_1) + (s_2 - c_2)}{2(\gamma + 3)}. \qquad (7)$$

It is clear that the subsidy promotes the domestic importing country to increase its tariff since $\frac{\partial \bar{t}}{\partial s_i} = \frac{1}{2(\gamma + 3)} > 0$.

In the second stage, each foreign exporting country chooses its export subsidy to maximize its welfare function, given the export subsidy of the other country and being completely aware of the fact that its export subsidy may affect the tariff rate and firms output in the third and fourth stage. Note that the national welfare of each exporting country is given by the profit of the firm, less the export subsidy payment:

$$W_i^U(s_{1,}, s_2) = \left[p_i^* - c_i + s_i - \bar{t}^*\right] q_i^* - s_i q_i^* \qquad (8)$$

denote the export subsidy chosen by country i under a uniform tariff regime by s_i^U ,we can get the non-cooperative subsidy by

$$s_1^U = \frac{(\gamma^2 + \gamma - 1)\left(4\gamma^2 c_1 - 4\gamma^2 + 10c_2\gamma + 4c_1\gamma - 14\gamma + 5c_2 + 24 - 29c_1\right)}{(2\gamma^2 - 3\gamma - 17)(2\gamma^2 + 7\gamma - 12)} \qquad (9)$$

$$s_2^U = \frac{(\gamma^2 + \gamma - 1)\left(4\gamma^2 c_2 - 4\gamma^2 + 10c_1\gamma + 4c_1\gamma - 14\gamma + 5c_1 + 24 - 29c_2\right)}{(2\gamma^2 - 3\gamma - 17)(2\gamma^2 + 7\gamma - 12)} \qquad (10)$$

imposing symmetry $c_1 = c_2 = c$ we get

$$s_1^U = s_2^U = \frac{2(1-c)(\gamma^2 + \gamma - 1)}{17 - 2\gamma^2 + 3\gamma} \qquad (11)$$

since we assume that $0 \le c < 1$ and also the denominator is always positive for any $0 \le \gamma \le 1$, it is clear that the sign of $s_1^U = s_2^U$ depends on the sign of $(\gamma^2 + \gamma - 1)$. So there is a value of γ that the optimal policy switches its sign from a tax (for $0 \le \gamma \le 0.618$) to a subsidy (for $0.618 \le \gamma \le 1$).

Some of the results obtained in the present paper can be linked to the existing literature. Under a uniform tariff regime, Liao and Wong (2006) prove that the exporting countries subsidies their firms in their jurisdiction to shift rent from the domestic importing country to its firms. We prove that their result is robust for any $(0.618 \le \gamma \le 1)$. However, their result is not valid for $(0 \le \gamma \le 0.618)$. We show that in this range products become sufficiently differentiated and firms become a monopoly in the world market. To avoid rent-shifting by the domestic importing country, both exporting countries heavily tax their firms located in their jurisdiction. This is the first result contrasts with the finding of Liao and Wong (2006).

The domestic importing country for any $0 \le \gamma \le 1$ impose a positive tariff on the export of the foreign countries since the equilibrium import tariff becomes $\bar{t} = \frac{5(1-c)}{17 - 2\gamma^2 + 3\gamma}$ which is always positive for any $0 \le \gamma \le 1$ and $0 \le c < 1$.

IV. Optimal Export Subsidy Policy Under Discriminatory Tariff Regime

In this section we study a discriminatory tariff regime. We shall demonstrate the specific import tariff imposed by the domestic importing country by t_i, $i = 1,2$. The game is again solved by backward-induction. In the fourth stage, taking the export subsidies (s_1, s_2), the tariffs (t_1, t_2), and the output of the other firm as given, each firm maximizes its profit:

$$\pi_i = (p_i - c_i + s_i - t_i)q_i \qquad (12)$$

By solving the two first-order conditions simultaneously, we can drive the Cournot equilibrium outputs $q_1^*(s_1, s_2, t_1, t_2)$ and $q_2^*(s_1, s_2, t_1, t_2)$ as follows

$$q_1 = \frac{2 + 2s_1 + t_2\gamma - \gamma + c_2\gamma - s_2\gamma - 2c_1 - 2t_1}{4 - \gamma^2} \qquad (13)$$

$$q_2 = \frac{2 - 2t_2 - 2c_2 + 2s_2 + c_1\gamma - s_1\gamma - \gamma + t_1\gamma}{4 - \gamma^2} \qquad (14)$$

we can see that an increase in t_1 will reduce q_1 but increase q_2. The increase in t_1 will reduce the total output of the industry because $\frac{\partial(q_1 + q_2)}{\partial t_1} = \frac{\gamma - 2}{4 - \gamma^2}$ is negative for any $0 \le \gamma \le 1$. It is easy to show that an increase in s_1 will increase q_1 but reduce q_2. The increase in s_1 will increase the total output of the industry since $\frac{\partial(q_1 + q_2)}{\partial s_1} = \frac{2 - \gamma}{4 - \gamma^2}$ is positive for any $0 \le \gamma \le 1$ and $0 \le c < 1$.

In the third stage, the importing country chooses t_1 and t_2 to maximize its welfare function. Note that the social welfare for the domestic country is defined as the sum of consumer surplus and the total government tariff revenue, that is,

$$W = u(q_1^*, q_2^*) - p_1^* q_1^* - p_2^* q_2^* + t_1 q_1^* + t_2 q_2^* \qquad (15)$$

solving the two first-order condition for two tariff rates yields the following optimal discriminatory tariffs:

$$t_1 = \frac{c_2\gamma - s_2\gamma - \gamma - 3c_1 + 3s_1 + 3}{9 - \gamma^2} \qquad (16)$$

$$t_2 = \frac{c_1\gamma - s_1\gamma - \gamma - 3c_2 + 3s_2 + 3}{9 - \gamma^2} \qquad (17)$$

we can see that an increase in s_1 increases t_1 but reduces t_2. The difference between the two tariff rates gives the Hwang and Mai's (1991) 50% rule for the homogeneous products which is

$$t_1 - t_2 = \frac{c_2 - s_2 - (c_1 - s_1)}{3 - \gamma} \qquad (18)$$

Hwang and Mai's (1991) 50% rule demonstrates that with constant marginal costs and when export subsidies are not included, the difference between the optimal tariffs rates chosen by the domestic importing country is half of that of the marginal costs. The above equation is a just a simple extension of Hwang and Mai's (1991) 50% rule in the presence of export subsidies and product differentiation. Differentiate the difference between two tariff rates gives

$$\frac{\partial(t_1 - t_2)}{\partial s_1} = \frac{1}{3-\gamma}. \qquad (19)$$

The above result shows that a small change in the subsidy rate imposed by one of the countries leads to a change in the tariff rate differential by $\frac{1}{3-\gamma}$ amount. In the case of homogenous product it is just 50% rule.

In the second stage, each foreign exporting country chooses its export subsidy to maximize its welfare function, given the export subsidy of the other country and being completely aware of the fact that its export subsidy may affect the tariff rate and firms output in the third and fourth stage. Note that the national welfare of each exporting country is given by the profit of the firm, less the export subsidy payment:

$$W_i^D(s_{1,}, s_2) = \left[p_i^* - c_i + s_i - t_i^*\right]q_i^* - s_i q_i^* \qquad (20)$$

denote the export subsidy chosen by country i under a discriminatory tariff regime by s_i^D,we can get the non-cooperative subsidy by

$$s_1^D = \frac{(\gamma^2 - 3)(c_1\gamma^2 - \gamma^2 - 3\gamma + 3c_2\gamma - 12c_1 + 12)}{\gamma^4 - 33\gamma^2 + 144} \qquad (21)$$

$$s_2^D = \frac{(\gamma^2 - 3)(c_2\gamma^2 - \gamma^2 - 3\gamma + 3c_1\gamma - 12c_2 + 12)}{\gamma^4 - 33\gamma^2 + 144} \qquad (22)$$

if we concentrate on the symmetric world i.e. $c_1 = c_2 = c$, then both exporting countries impose a tax on their firms since we get $s_1^D = s_2^D = \frac{(1-c)(3-\gamma^2)}{\gamma^2 - 3\gamma - 12}$ which is always negative. Note that negative subsidy means a tax. Therefore, in a symmetric world if the foreign exporting country expects that the domestic importing country imposes a tariff on its firm, it will impose a tax on its firm to avoid a higher tariff rate and it is true for any $0 \le \gamma \le 1$. This result confirms that of Liao and Wong (2006) for any degree of product differentiation. As a result, in this new environment the argument of Brander and Spencer (1985) is not valid.

The equilibrium tariff rate of the domestic government for the symmetric world is equal to $t_1 = t_2 = \frac{3(1-c)}{12 + 3\gamma - \gamma^2}$ which is positive for any $0 \le \gamma \le 1$ and $0 \le c < 1$.

V. Uniform or Discriminatory Tariffs in a Symmetric World?

In this section we use the optimal calculated policies to conduct a welfare comparison of these two tariff regimes for all these countries. First we focus on the symmetric world, i.e. $c_1 = c_2 = c$. We know that, even in a symmetric world, what the domestic importing country under uniform tariff regime does in repose to the optimal subsidy/tax chosen by the foreign exporting countries is completely different from what the domestic importing country does under discriminatory tariff regime.

This fact is summarized in the following proposition:

Proposition 1: In the sequential game under a discriminatory (uniform) tariff regime in which export subsidies/taxes are chosen before the tariffs, for the symmetric world the optimal tariffs rate under uniform regime is higher than that under discriminatory regime.

Proof: subtracting $t_1 = t_2 = \frac{3(1-c)}{12+3\gamma-\gamma^2}$ from $\bar{t} = \frac{5(1-c)}{17-2\gamma^2+3\gamma}$ gives $\bar{t} - t_1 = \frac{(1-c)(\gamma+3)^2}{(-17-3\gamma+2\gamma^2)(-12-3\gamma+\gamma^2)}$ which is always positive for any $0 \le \gamma \le 1$ and $0 \le c < 1$.

Q.E.D

Because of this fact, the optimal welfare levels must be different. We shall show the maximum welfare level of the domestic importing country under the uniform tariff regime by W_M^U and the maximum welfare level of the domestic importing country under the discriminatory tariff regime by W_M^D. Comparison between W_M^U and W_M^D gives the following proposition:

Proposition 2: In the symmetric world in which the two foreign exporting countries are identical, the importing country will choose the uniform tariff regime.

Proof: Comparison between W_M^U and W_M^D yields $W_M^U - W_M^D = \frac{(1-c)^2(\gamma+3)^3(111+24\gamma-11\gamma^2)}{(\gamma^2-3\gamma-12)^2(2\gamma^2-3\gamma-17)^2}$ which is always positive for any $0 \le \gamma \le 1$ and $0 \le c < 1$.

Q.E.D

Proposition 2 confirms Liao and Wong (2006) result for any degree of product differentiation.

We now turn to conduct a similar comparison of these two tariff regimes for the foreign exporting countries.

Proposition 3: In the sequential game under a discriminatory (uniform) tariff regime in which export subsidies/taxes are chosen before the tariffs, for the symmetric world the optimal subsidy/tax rate under uniform regime is higher than that under discriminatory regime.

Proof: contrasting $s_1^D = s_2^D = \frac{(1-c)(3-\gamma^2)}{\gamma^2-3\gamma-12}$ with $s_1^U = s_2^U = \frac{2(1-c)(\gamma^2+\gamma-1)}{17-2\gamma^2+3\gamma}$ gives $s^U - s^D = \frac{(1-c)(\gamma+3)^3}{(-17+2\gamma^2-3\gamma)(-12-3\gamma+\gamma^2)}$ which is positive for any $0 \le \gamma \le 1$ and $0 \le c < 1$.

Q.E.D

Therefore, the optimal welfare levels for the foreign exporting countries must be different. We shall show the maximum welfare level of the foreign exporting countries under the uniform tariff regime by W_1^U and the maximum welfare level of the domestic importing country under the discriminatory tariff regime by W_1^D. Comparison between W_1^U and W_1^D gives the following proposition:

Proposition 4: In the symmetric world in which the two foreign exporting countries are identical, the foreign exporting countries will choose the discriminatory tariff regime.

Proof: Comparison between W_1^U and W_1^D yields

$$W_1^U - W_1^D = \frac{2(1-c)^2(\gamma+3)^3\left(-3-11\gamma-2\gamma^2+\gamma^3\right)}{\left(\gamma^2-3\gamma-12\right)^2\left(2\gamma^2-3\gamma-17\right)^2}$$ which is always negative for any $0 \le \gamma \le 1$ and $0 \le c < 1$.

Q.E.D

Proposition 4 confirms Liao and Wong (2006) result for any degree of product differentiation. So far we have proved that the foreign exporting countries are against uniform tariff regime (MFN) and the domestic importing country in favour of it. But which tariff regime is socially desirable?

To answer the question, define world welfare under MFN as the sum of welfare in each country:

$$WW^U(\bar{t}, s_1, s_2) = W_1^U(\bar{t}, s_1, s_2) + W_2^U(\bar{t}, s_1, s_2) + W_M^U(\bar{t}, s_1, s_2)$$

and world welfare under tariff discrimination as the sum of welfare in each country:

$$WW^D(t_1, t_2, s_1, s_2) = W_1^D(t_1, t_2, s_1, s_2) + W_2^D(t_1, t_2, s_1, s_2) + W_M^D(t_1, t_2, s_1, s_2)$$

the next proposition summarizes our finding.

Proposition 5: In the symmetric world in which the two foreign exporting countries are identical, the world welfare under uniform regime is higher than that of tariff discrimination.

Proof: Comparison between $WW^U(\bar{t}, s_1, s_2)$ and $WW^D(t_1, t_2, s_1, s_2)$ gives

$$WW^U(\bar{t}, s_1, s_2) - WW^D(t_1, t_2, s_1, s_2) = \frac{(1-c)^2(\gamma+3)^3\left(4\gamma^3-19\gamma^2-20\gamma+99\right)}{\left(\gamma^2-3\gamma-12\right)^2\left(2\gamma^2-3\gamma-17\right)^2}$$ which is always positive for any $0 \le \gamma \le 1$ and $0 \le c < 1$.

Q.E.D

The above result shows that in the absence of asymmetry, uniform tariff regime adoption contributes to world welfare even though it is not accompanied by complete trade liberalization. The reason is that tariff discrimination is biased against low-cost exporters and it diverts trade towards high-cost ones, whereas no such inefficiency exists under uniform tariff regime.

VI. Concluding Remarks

Brander and Spencer (1985) prove that unilateral intervention in the imperfectly competitive market is a welfare-enhancing policy. According to models of strategic trade policies in which firms are immobile in a framework of imperfect competition, there is a welfare gain for the domestic country to intervene in the economy. The shortcoming of the Brander and Spencer (1985) model is that the importing country is not active. In this paper, we analyze the non-cooperative interactions between two foreign exporting countries producing two differentiated products and one domestic importing country when all of the governments use optimal policies to maximize their welfare. Under a uniform tariff regime, Liao and Wong (2006) prove that the exporting countries subsidies their firms to shift rent from the domestic importing country for perfect substitute goods. We prove that their result is robust if goods are nearly perfect substitutes. However, their result is not valid if goods are sufficiently differentiated. We show that if products become sufficiently differentiated, each firm becomes a monopoly in the world market. To avoid tariff rent-shifting policy by the domestic importing country, both exporting countries heavily tax the export of the

firms located in their jurisdiction. We demonstrate that, in the case when the two exporting countries are identical, the domestic importing country always prefers a uniform tariff regime for any degree of product differentiation while the two exporting countries prefer a discriminatory tariff regime.

While our model delivers some new insights, it is somewhat special in nature, since it assumes that both demand and cost are linear. However, relaxing these assumptions would be very problematic if we sought to prove a general welfare comparison.

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