

Entry Modes and Agreements on Tariff and Local Content Requirements

Jung Hur and Yohanes E. Riyanto*

May 21, 2002

Abstract

In a partial equilibrium model of vertical structure with two countries; host and foreign, we compare two systems; with or without WTO agreements. We analyze whether or not there is an incentive for a host country to liberalize local content requirements (LCR) and tariffs under the WTO. To see this, we investigate the interaction between bargaining power of the host country and discount factor for the foreign country that makes the arrangement sustainable in the long run. Several findings are interesting to note. (1) Under the No-WTO system, there may be a case of "unilateral tariff liberalization" by the host country when the foreign firm has a choice of whether to enter or to export to the home market. In particular, this is true when the set-up cost is small. (2) Under WTO system, LCR liberalization and tariff liberalization are substitutes. (3) Under the WTO, there may be a case of "natural rate of tariff (or LCR) protection" when home country's bargaining power is smaller than foreign country.

Keywords: tariff, local content requirements, export, foreign direct investment, trade and investment liberalization, reciprocity, WTO

J.E.L. Classification: F13, F14, F23, L13

*We are grateful to participants of International Economics Brown Bag Meeting at NUS. Both authors are affiliated to the Department of Economics, National University of Singapore, AS2 1 Arts Link, Singapore 105001. E-mails: ecshurj@nus.edu.sg and ec-srye@nus.edu.sg. Tel: +65-8744873 and +65-8746939. Fax: +65-7752646.

1 Introduction

Since 1947 to date, the GATT/WTO has provided successful forums for international tariff negotiations in which the members could pursue mutually beneficial market access from the standpoint of exporters' interests (Bagwell and Staiger (1996)). For example, it is well known that the world average tariff has been lowered from 40 percent in the late 40s to less than 5 percent today as a result of GATT/WTO tariff negotiations.

The GATT/WTO negotiations have also tried to incorporate trade related investment measures (TRIMs), that include local content requirement, export performance, transfer of technology requirements, etc, so as to open up their markets to foreign multinational firms. In particular, the Uruguay round made it illegal (or found it inconsistent with Article III:4 of GATT) for members to impose a local content requirement (LCR) on FDI. This practice is frequently imposed by developing countries on the foreign developed-country's multinational firms (see UNIDO (1986)).

This present paper covers the above issue. In particular, it investigates a country's incentive to engage in free trade and the illegality of local content requirement under the WTO system using a framework in which a foreign multinational firm has a choice of entry mode between export and FDI. Surprisingly, no previous analytical research has paid attention on the interaction between a host country and a multinational firm facing tariff and LCR, and on the interplay between trade and investment liberalization under the GATT/WTO negotiations.

To address this issue, we set up a partial equilibrium model in which there are two countries: a host and a foreign, each of which has a vertical structure consists of one upstream and one downstream firm. We assume that only the host country has a final good market, in which consumers can buy either domestic or foreign goods. Given this structure, we consider the foreign multinational firm's endogenous choice of entry mode to the host country and the host country's choice of tariff and local content requirement (LCR) rates. Furthermore, we also investigate the interaction between the

host country's bargaining power and the required discount factor for the foreign country that will make tariff and LCR liberalizations sustainable in the long run.

Our result shows that, on the one hand, the host country is better off with imports than with FDI. This is because of the existence of an extra government revenue accrued from imposing tariff and the omittance of other benefits of FDI that might be obtained by the host country, e.g. employment creation and technology transfer. On the other hand, the foreign firm prefers establishing a foreign subsidiary in the host country to export when the set-up costs for setting up a foreign subsidiary are sufficiently low. This implies that there is potentially a conflicting choice of the preferred mode of entry between the host country and the foreign firm. Accordingly, to give an incentive for the foreign firm to export, the host country may need to set a *suboptimal tariff* (a tariff rate that is lower than the optimal tariff rate) against the foreign firm. This is tantamount to saying that the host country is willing to *unilaterally liberalize* its tariff in the absence of any trade agreement between the two countries.

Subsequently, we show that the global welfare increases when there is a trade (or investment) liberalization. However, the increase in the global welfare comes at the expense of the host country who has to open up its market. Consequently, the host country will be reluctant to carry out such a liberalization, unless there exists a proper transfer scheme between the home and foreign countries. The size of the transfer sceme depends on the relative bargaining power of the host country vis-a-vis the foreign country. We find out that, when the bargaining power of the host country is smaller than the foreign country, the host country may not be sufficiently compensated for the welfare loss resulting from implementing a trade or investment liberalization. Evidently, there must be a limit on the extent of such a liberalization policy that the host country is willing to do. The host country may be reluctant to fully liberalize its trade or investment. We demonstrate that there may exits *a natural rate of tariff (or LCR) protection* in the host country.

Additionally, we also show that, in the long run, there may be an incentive for the foreign multinational firm to renege from its commitment to give the transfer payment. We then characterize the required condition for the foreign country to honor the commitment. We find that a higher bargaining power of the host country relative to the foreign country requires a higher discount factor for the foreign firm to sustain the commitment.

Content protection policies have been analyzed by Wonnacott and Wonnacott (1967), Corden (1971), Grossman (1981), Krishna and Itoh (1988), Vousden (1987), Hollander (1987), Davidson et al (1987) and Richardson (1991). All of them focus only on the case of foreign firms who have already chosen FDI as an entry mode and face a local content restriction. This setting is quite restrictive since it does not analyze the incentive of the foreign firms, who know that they will face a LCR policy once they have entered, to choose FDI in the first place. Naturally if the level of LCR is excessively high, these foreign firms will not enter. Indeed, empirical evidence on foreign firms' incentive to enter as an FDI in a host country in the presence of the host country's LCR policy confirms this.¹

None of those theoretical and empirical studies view the foreign firms as a multinational firm that has a choice of entry mode between export and FDI. Our paper introduces such an endogenous choice by a foreign multinational firm.

There have also been lots of analytical research on a multinational firm's entry choice (see e.g. Helpman (1984), Brainard (1993), Markusen (1995), etc). However, to the best of our knowledge, there are only few papers that explored a foreign multinational firm's entry-behavior in the presence of the host country's content protection policy. Lahiri and Ono (1998) and Qiu and Tao (2001) are among those few.

However, their papers do not consider fixed costs as a barrier to entry. We

¹See among others Kokko and Blomstrom (1995) and Lopez-da-Silanes, Markusen, and Rutherford (1996). They find that local content provisions discourage foreign firms from producing inside.

argue that the entry costs should play a crucial role for the entry decision.² Therefore, our analysis will explicitly incorporate fixed costs of entry. Most importantly our paper differs from theirs in that ours provides *a unified framework* to analyze an interplay among; a multinational firm's choice of entry mode (between export and FDI), a host country's optimal choice of tariff and LCR level, and a possibility of the two countries joining the WTO and committing on trade and investment liberalizations.

This paper proceeds as follows. Section 2 presents our model set-up. Section 3 examines a benchmark case in which the host country sets an optimal tariff and LCR rate and a foreign multinational firm chooses its entry mode. Section 4 deals with several cases of trade and investment liberalizations. Section 5 and 6 analyse the feasibility of such liberalizations in the absence of 'reciprocity principle' that governs the WTO. We show that a surplus transfer-scheme is required to support the viability of such liberalisations. We also analyse the role of the relative bargaining power of the host country vis-a-vis the foreign country, and the foreign country's discount factor in sustaining the transfer scheme in the long run. In addition, we also discuss some interpretations of the transfer scheme. Section 7 concludes.

2 The Model Setting

We consider a case of two countries; home (h) and foreign (f), in each of which a downstream firm (d) produces a homogenous final good, and an upstream firm (u) produces a homogenous input good needed to produce the final good.

For the purpose of our analysis, we confine our attention to the home country. We assume that there is no final good market in the foreign country. Thus, the home and foreign downstream firms are serving the home country

²Indeed, an empirical study conducted by Moran (1992) finds that firms are often reluctant to move production to a country even if the rate of LCR is sufficiently low. Markusen and Venables (1995) argue that this empirical result points to the importance of entry costs. See also Brainard (1993) for the importance of fixed costs as a barrier to entry.

only. The two downstream firms observe the home market demand, which is assumed to be linear; $P = 1 - Q = 1 - (q_d^h + q_d^f)$. In which, P is the market price and Q is the total market quantity demanded from the home firm (q_d^h) and foreign firm (q_d^f).

The two downstream firms are competing in the home market with the same technology; that is, one unit of the input good is needed to produce one unit of the final good. The foreign firm, before competing in the final good market, must decide whether to *export* or to *enter* the home market. If the foreign firm chooses to export to the home market, it has to pay a specific tariff (τ) per unit of exports. Instead, if it enters and produces the final good in the home market, it has to pay set-up cost (S) and to abide to a local content requirement (α).³

The local content requirement (hereafter is LCR) is defined as a physical ratio of local input contents to the total input contents that the foreign firm must use for its manufacturing process.⁴ Let q_u^h and q_u^f indicate the amount of input good used by home and foreign downstream firms, respectively. We assume that the home downstream firm only has access to its local upstream firm, however the foreign downstream firm can use the input good produced by either the local or the domestic upstream firm. In a case that there is a LCR set by the host country⁵, αq_u^f represents the amount of local input good that the foreign firm is obliged to use, and $(1 - \alpha) q_u^f$ is the amount that is

³From the point of view of the foreign firm, these set-up costs (entry costs) are analytically equivalent to a lump-sum tax imposed by the host country. Thus, a consideration of a lump-sum tax imposed on the multinationals would not change our results on the incentive of the foreign firms to enter the host country. However, from the point of view of the host government, a lump-sum tax represents an additional source of revenue. Thus, it will obviously affect the total welfare. However, we will leave this issue for our future work.

⁴Grossman (1981) considers a LCR as both in physical and in value terms. We do not use the latter definition because it may overevaluate the value of local contents. In fact, Lahiri and Ono (1998) and Qui and Tao (2001) follow the former definition too.

⁵In case of no LCR imposed, then the foreign firm will be indifferent as from which country the inputs come. So, for the sake of comparison with positive LCR case, we assume that the foreign firm demands the inputs from its own country when LCR is zero. This assumption can be thought to arise from some exogenous benefits of utilizing the inputs from its own nation, such as input preferences or tastes, and long term relationships, etc.

allowed to be imported from its own country without duties. the case of a positive LCR. For the sake of simplicity and without loss of generality, we assume that production cost is zero for the upstream firms⁶.

The aforementioned market structure setting is depicted in the following figure. Figure 1(a) and (b) show the cases in which the home government imposes a tariff and LCR policy respectively.⁷

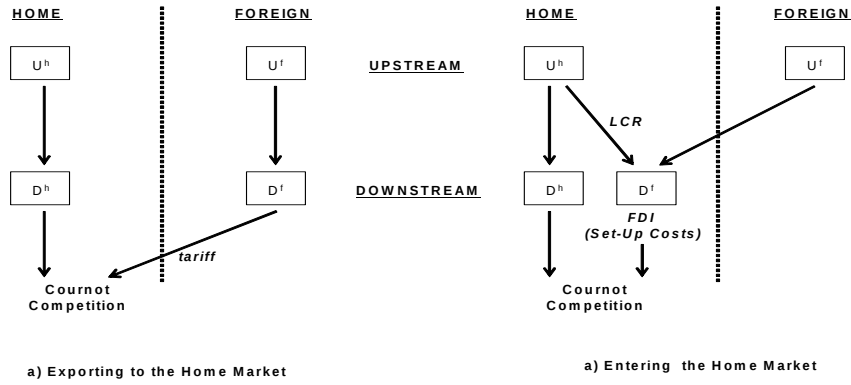


Figure 1: Vertical Market Structures and Entry Modes

Note that we consider FDI as the only mode of entering the host country. In our paper, a *tariff-jumping* motivation can be the reason for choosing FDI mode.⁸ Markusen (1995) argues that there is some evidence showing a positive relationship between the existence of trade barriers and the level

⁶If one wants to include positive costs, two considerations can be taken into account. The first is symmetric positive costs, which does not convey new results as we also have symmetric costs, albeit of zero costs. The second is asymmetric positive costs, in which the foreign firm has a cost advantage. This case reinforces our results because now the foreign firm will definitely demand from its own country.

⁷Notice that, from the figure (a), we do not consider a case in which a foreign manufacturer demands inputs from a domestic upstream firm. This assumption is necessary to facilitate our LCR analysis. In the case of LCR policy, we assume that the foreign firm will follow the required rate of LCR (α). This assumption will be clarified later.

⁸See Markusen (1995). There are also many other motivations for FDI, such as ownership, location, and internalization motivation. However, for the purpose of our analysis we only concentrate on the tariff-jumping motivation.

of foreign direct investment. Trade barriers causes a substitution effect toward direct investment. Another recent evidence on tariff-jumping FDI is presented by Belderbos and Sleuwagen (1998). They test the hypothesis that recent Japanese FDIs in electronics sector in Europe (in the mid 80s) have been a response to trade barriers. Their result strongly confirms their hypothesis.

Other modes of direct investment include; joint ventures, licensing agreement, etc (Markusen, 1995). Extending our analysis to include these other modes would be an interesting avenue for further research.

Given the above structure, the timing of the game is as follows (see Figure 2). In Stage 1, the home government sets tariff and LCR level. In Stage 2, the foreign downstream firm decides its entry mode, i.e. exporting to the home market or entering the home market. In Stage 3, home and foreign input producers observe the demand for input and maximize their profits. Finally, in Stage 4, home and foreign final good producers engage in Cournot competition after observing the demand for the final good.

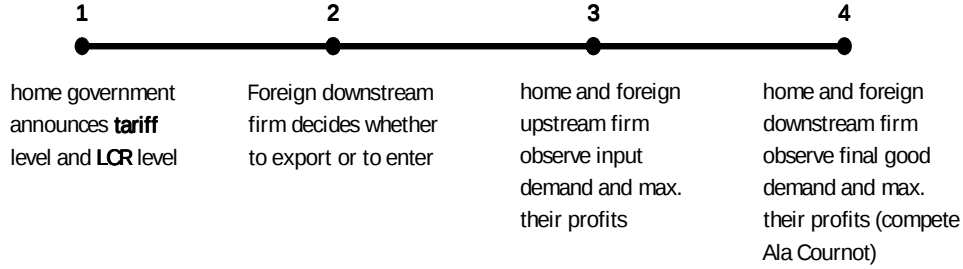


Figure 2: The Game Structure

We solve this game by backward induction starting from the last stage, i.e. downstream cournot competition.

2.1 Downstream Cournot Competition

We consider two cases. The first one is the case in which the foreign downstream firm has chosen to export to the home market in stage 2, while the second case is the one in which it has chosen to enter the home market and establish FDI in stage 2.

2.1.1 Export Mode

Given the assumption on the production technology of the two firms, we have $q_d^h = q_u^h$ and $q_d^f = q_u^f$. Hence, the home and foreign downstream firms' profit function respectively are as follows.

$$\Pi_d^h = [P - p_u^h] q_d^h = \left[1 - (q_d^h + q_d^f) - p_u^h\right] q_d^h \quad (1)$$

$$\Pi_d^f = [P - p_u^f - \tau] q_d^f = \left[1 - (q_d^h + q_d^f) - p_u^f - \tau\right] q_d^f \quad (2)$$

They compete in quantities in a Cournot-Nash sense. Deriving and solving the first order conditions yields the following Cournot-Nash equilibrium quantities⁹.

$$q_d^h = \frac{1 - 2p_u^h + p_u^f + \tau}{3} \quad (3)$$

$$q_d^f = \frac{1 - 2p_u^f + p_u^h - 2\tau}{3} \quad (4)$$

The final good price in the home market is then,

⁹In the equilibrium, the tariff affects the quantities directly and indirectly. $\frac{\delta q_d^h}{\delta \tau} = \frac{1}{3} + \frac{1}{3} \left(\frac{\delta p_u^f}{\delta \tau} - 2 \frac{\delta p_u^h}{\delta \tau} \right)$ and $\frac{\delta q_d^f}{\delta \tau} = -\frac{2}{3} - \frac{1}{3} \left(2 \frac{\delta p_u^f}{\delta \tau} - \frac{\delta p_u^h}{\delta \tau} \right)$. The first terms are *direct policy effects* of tariff on the equilibrium quantities, and the second terms are *indirect demand effects*. The direct policy effect on the firm of the host country is positive, but negative for the foreign firm in the host country. The indirect demand effect is ambiguous since it depends on the relative impact on the price of the upstream firms in both countries. Hence, the tariff's protection effect on a local firm's quantity are not clear. However, the effect on total market quantity are *negative* since $\frac{\delta(q_d^h + q_d^f)}{\delta \tau} = -\frac{1}{3} - \frac{1}{3} \left(\frac{\delta p_u^f}{\delta \tau} + \frac{\delta p_u^h}{\delta \tau} \right) < 0$ due to $\frac{\delta p_u^f}{\delta \tau} > 0$, and $\frac{\delta p_u^h}{\delta \tau} > 0$ as we will see in later section.

$$P = \frac{1 + p_u^h + p_u^f + \tau}{3} \quad (5)$$

2.1.2 FDI Mode

In this case, the foreign firm incurs set-up costs (S) to establish a direct foreign subsidiary, and it is required to abide to the LCR ratio (α) imposed by the home country's government. The home and foreign downstream firms' profit function respectively are as follows.

$$\Pi_d^h = \left[1 - (q_d^h + q_d^f) - p_u^h \right] q_d^h \quad (6)$$

$$\Pi_d^f = \left[1 - (q_d^h + q_d^f) - \alpha p_u^h - (1 - \alpha) p_u^f \right] q_d^f - S \quad (7)$$

The Cournot-Nash equilibrium quantities¹⁰ are such that

$$q_d^h = \frac{1 + (\alpha - 2) p_u^h + (1 - \alpha) p_u^f}{3} \quad (8)$$

$$q_d^f = \frac{1 - (2 - 2\alpha) p_u^f + (1 - 2\alpha) p_u^h}{3} \quad (9)$$

The final goods price in the home market can then be expressed as,

$$P = \frac{1 + (\alpha + 1) p_u^h + (1 - \alpha) p_u^f}{3} \quad (10)$$

¹⁰In the equilibrium, the LCR affects the quantities directly and indirectly as noted for the export mode case. That is, $\frac{\delta q_d^h}{\delta \alpha} = \frac{1}{3} (p_u^h - p_u^f) + \frac{1}{3} \left((1 - \alpha) \frac{\delta p_u^f}{\delta \alpha} - (2 - \alpha) \frac{\delta p_u^h}{\delta \alpha} \right)$ and $\frac{\delta q_d^f}{\delta \alpha} = -\frac{2}{3} (p_u^h - p_u^f) + \frac{1}{3} \left((1 - 2\alpha) \frac{\delta p_u^h}{\delta \alpha} - 2(1 - \alpha) \frac{\delta p_u^f}{\delta \alpha} \right)$. In these two equations, the first terms are *direct policy effects* of LCR on the equilibrium quantity. The second terms are *indirect demand effects*. The direct policy effect on the firm of host country is opposite to that for the foreign firm; if it is positive (negative) for the home firm, then it will be negative (positive) for foreign firm. It depends on the relative price of the upstream firms' inputs in both countries. The indirect demand effect is also ambiguous since it depends on both the scale of LCR policy and the relative marginal impact on the price of the upstream firms in both countries. Hence, the LCR policy's protection effect on a local firm's quantity are not clear. also, the total effect on the market quantity is positive since $\frac{\delta (q_d^h + q_d^f)}{\delta \alpha} = -\frac{1}{3} (p_u^h - p_u^f) - \frac{(1 - \alpha)}{3} \left(\frac{\delta p_u^f}{\delta \alpha} + \frac{\delta p_u^h}{\delta \alpha} \right)$ as long as $\frac{\delta p_u^f}{\delta \alpha} > 0$, $\frac{\delta p_u^h}{\delta \alpha} > 0$, and $p_u^h > p_u^f$.

The optimal quantities of the final good (q_d^h and q_d^f) are a function of the input prices at the home and foreign markets. So is the price of the final good (P). Next, we move to the preceding stage and determine the input price set by home and foreign upstream firms.

2.2 Upstream Monopolists' Decision

Here, we also need to consider the two entry modes chosen by the foreign downstream firm in stage 2.

2.2.1 Export Mode

As before, the first case is the one in which it chose to export the good to the home market. Given the export mode, the upstream firm in each country observes its local demand from the downstream firm and maximizes its profits. The profit functions for the two upstream firms are as follows.

$$\pi_u^h = p_u^h q_u^h \quad (11)$$

$$\pi_u^f = p_u^f q_u^f \quad (12)$$

From (3) and (4), we have $p_u^h = 1 - 2q_u^h - q_u^f$, and $p_u^f = 1 - \tau - 2q_u^f - q_u^h$. Substituting them in the above profit functions and solving them for the optimal quantity of input, we obtain;

$$q_u^h = \frac{1}{5} + \frac{1}{15}\tau \quad (13)$$

$$q_u^f = \frac{1}{5} - \frac{4}{15}\tau \quad (14)$$

2.2.2 FDI Mode

For the case of FDI with LCR, profit functions are

$$\pi_u^h = p_u^h [q_u^h + \alpha q_u^f] \quad (15)$$

$$\pi_u^f = p_u^f (1 - \alpha) q_u^f \quad (16)$$

From (8) and (9), the respective upstream firm observes its demand as $p_u^h = 1 - 2q_u^h - q_u^f$, and $p_u^f = 1 - \frac{1-2\alpha}{1-\alpha}q_u^h + \frac{\alpha-2}{1-\alpha}q_u^f$. Given these demands for input, the optimal quantities supplied by each of the upstream firms are as follows.

$$q_u^h = \frac{2\alpha^2 - 3\alpha + 3}{4\alpha^2 - 8\alpha + 15} \quad (17)$$

$$q_u^f = \frac{3 - 2\alpha}{4\alpha^2 - 8\alpha + 15} \quad (18)$$

Note that q_u^f is decreasing in α . This results are derived under the condition that the foreign firm will not have an incentive to exceed the imposed LCR rate.

However, a question might be posed on whether or not this will indeed be the case. We argue that it will not. Our argument is as follows. First, we look at the impact of a LCR policy on the demand faced by both upstream firms. It is obvious that there are *demand-creation* benefits for the domestic upstream firm as the foreign downstream firm is now required to buy inputs from the home upstream firm. This will definitely put an upward pressure on the domestic input price. At the same time there is a *shrinking-demand* effect experienced by the foreign upstream firm. The foreign firm, which is a monopolist in the foreign market, has to sell less input. Consequently, the 'monopoly' input-price in the foreign market also increases. The rate of increase, however, will be different (see figure 3). This indeed can be seen from figure 3 derived from our model (the vertical axis is for the prices and the horizontal axis is for α). Note also that both prices increase with α .

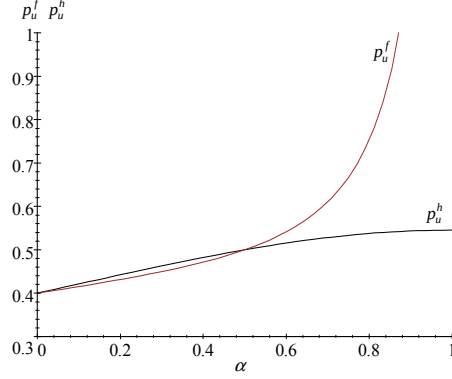


Figure 3: Input Prices as a Function of LCR Rate

Thus, the foreign firm may have a discretion as to which inputs it should buy. Obviously, when the input price in its own market is higher than in the home market, it should obtain all inputs from the home upstream firm. From an inspection on the figure, it is obvious that when $0 < \alpha < 0.5$, the domestic input price is higher than the foreign input price. Evidently, the foreign firm will not want to exceed the required LCR rate. However, when $0.5 < \alpha < 1$, the domestic input price is lower than the foreign input price. Given these price differences, the foreign firm may be tempted to exceed the required LCR rate. However, we argue that this is unlikely to prevail. If the foreign firm exceeds the LCR rate, the *demand-creation* effect gets larger, and so does the upward pressure on the domestic input price. Hence, it may not pay off for the foreign firm to exceed the required LCR rate. Instead the foreign firm may opt to reduce the quantity produced, which obviously decreases profits. In the next section, we compare profits accrued from the two entry modes.

2.3 Foreign Downstream Firm's Choice of Entry Mode

We now solve for the endogenous choice of entry mode of the foreign downstream firm. The foreign firm's choice of entry will be determined by the following rule,

$$Max \left[\Pi_d^f(\tau), \Pi_d^f(\alpha) \right] \quad (19)$$

We utilize all solutions in stage 3 and 4. We derive two foreign firm's profit functions as, respectively, a function of tariff and LCR level¹¹.

$$\Pi_d^f(\tau) = \frac{1}{225} (4\tau - 3)^2 \quad (20)$$

$$\Pi_d^f(\alpha) = \frac{(3 - 2\alpha)(2\alpha^2 - 7\alpha + 6)}{(4\alpha^2 - 8\alpha + 15)^2} - S \quad (21)$$

Given the optimal level of tariff and LCR set by the home country in stage 1, If $\Pi_d^f(\tau) > \Pi_d^f(\alpha)$ then the foreign firm will export rather than invest directly. Otherwise, if $\Pi_d^f(\tau) < \Pi_d^f(\alpha)$, then it will choose FDI rather than export. Hence we want to see the set of policy combination that makes the foreign firm indifferent between the two modes of entry. This is the case when $\Pi_d^f(\tau) = \Pi_d^f(\alpha)$. Let's call it *profit equivalence curve (PEC)*. The following two figures show two cases for the PEC: the case of $S = 0$ and the case of $S = 0.024$.

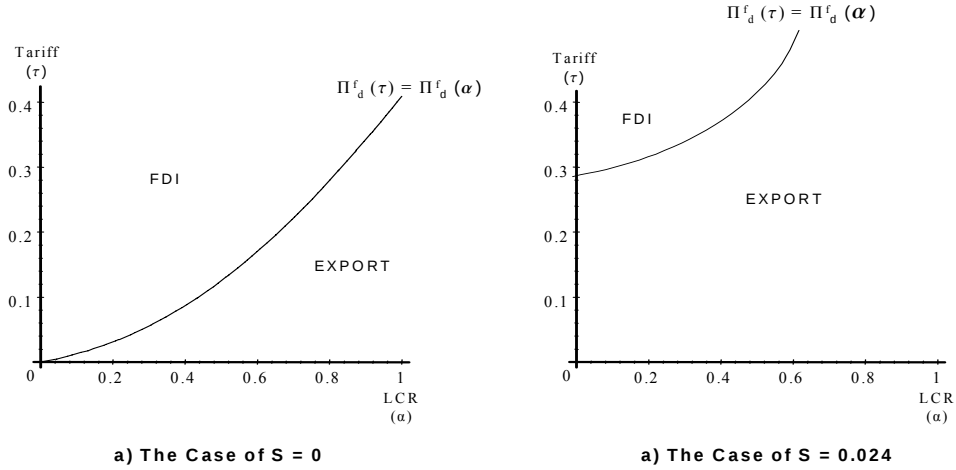


Figure 4: The Profit Equivalence Curves (PEC)

¹¹We can easily check $\Pi_d^f(\alpha)$ is decreasing in α . The higher the LCR rate, the lower the profits will be. This can be explained as follows. A higher α increases both input prices, as is explained previously. As the foreign firm obtains input from both sources, the foreign firm suffers a lot from an enforcement of LCR policy.

All policy combinations above the curves indicate that $\Pi_d^f(\tau) < \Pi_d^f(\alpha)$. This implies that, with such policy combinations, the foreign downstream firm prefers FDI to export. Likewise, all policy combinations below the curves indicate that $\Pi_d^f(\tau) > \Pi_d^f(\alpha)$, and thus it implies that the foreign downstream firm prefers export to FDI.

2.4 Home Country's Choice of Policies

In stage 1, the home country's objective is to maximize its welfare function. We define it as the sum of consumer's surplus and upstream and downstream producers' surplus, and, if any, government revenue. By looking it backward, it expects to have the foreign firm either to export or to enter as an FDI. So, the rule for the policy choice is;

$$Max [W^h(\tau), W^h(\alpha)] \quad (22)$$

where

$$W^h(\tau) = \frac{1}{5} + \frac{1}{5}\tau - \frac{7}{30}\tau^2 \quad (23)$$

$$W^h(\alpha) = \frac{1}{2} \left(\frac{91\alpha^2 - 96\alpha - 44\alpha^3 + 90 + 12\alpha^4}{(4\alpha^2 - 8\alpha + 15)^2} \right) \quad (24)$$

The home country will choose tariff or LCR level that maximizes its respective welfare function. The following lemma applies.

Lemma 1 (a) *If the chosen mode of entry is export, the optimal choice of tariff rate is $\tau^o = \frac{3}{7}$.* (b) *If the chosen mode of entry is FDI, the optimal choice of LCR rate is $\alpha^o = 1$.* (c) *The home country's welfare in the case of export is higher than in the case of FDI ($W^h(\tau^o) > W^h(\alpha^o)$).*

Proof. This is trivial from (23) and (24). ■

The following figure clarifies point (c) of the above lemma. It is obvious that the home country's welfare will be higher when the home country can induce the foreign country to export rather than to do FDI.¹²

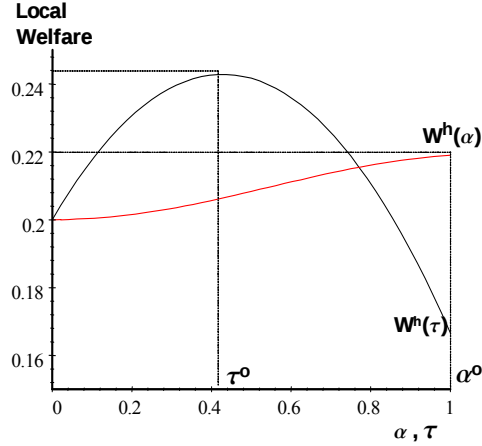


Figure 5: Local Welfare

However, the intriguing question here is how to provide incentive for the foreign country to export. The next section discusses this in details and also evaluates the host country's incentive to engage in trade and/or investment liberalization.

3 The Benchmark Case

Eventhough the home government would like to have the foreign downstream firm to export rather than to enter, the foreign firm may not want to export. Thus, in order to give the foreign downstream firm an incentive to export, the government must ensure that the following two constraints are satisfied.

¹²Obviously, in this model we do not take into account other positive benefits that may be obtained from having a foreign direct investment such as employments and technology transfer. To the same extent, one may also consider negative impacts of FDI such as decreasing a local firm's profitability. We design the model in such a way that a home country's welfare is higher in the presence of export because the local government receives tariff revenue. Regardless of this special case, our specification does not hurt a generality of the results of this paper, as we will see in the following chapters.

$$W^h(\tau^o) - W^h(\tau) \leq W^h(\tau^o) - W^h(\alpha^o) \quad (25)$$

$$\Pi_d^f(\tau) \geq \Pi_d^f(\alpha^o) - S \geq \Pi_d^f(\tau^o) \quad (26)$$

The first constraint tells that the host country's welfare loss from imposing τ other than τ^o must be smaller than its welfare loss from imposing α^o instead of τ^o . This constraint is needed in order to ensure that the tariff level τ gives the host country a higher welfare under the export mode than under the FDI mode. This constraint can be simplified into $W^h(\tau) \geq W^h(\alpha^o)$. The second constraint needs to be satisfied to induce the foreign firm to export instead of to do FDI. It depends on the size of set-up costs S that have to be sunk to establish a foreign subsidiary.

Proposition 1 (a) If $S = 0$, then the home country will choose a suboptimal tariff rate such that $\tau = 0.41 < \tau^o$, (b) If $S \in (0, S^*]$, where $S^* = 0.92 \times 10^{-3}$, then the home country will choose a suboptimal tariff rate which is monotonically increasing from 0.41 to τ^o , and (c) If $S > S^*$, then the home country will choose the optimal tariff rate τ^o .

Proof. From the model we introduced in the previous section, we know that $W^h(\tau) = \frac{1}{5} + \frac{1}{5}\tau - \frac{7}{30}\tau^2$ and $W^h(\alpha) = \frac{1}{2} \frac{91\alpha^2 - 96\alpha - 44\alpha^3 + 90 + 12\alpha^4}{(-8\alpha + 15 + 4\alpha^2)^2}$. Given these welfare functions, we need to satisfy $W^h(\tau) \geq W^h(\alpha^o = 1)$. Simple algebra tells us that the range of tariff that home government is willing to set against the foreign firm must be in between 0.11 and 0.43 ($= \frac{3}{7} = \tau^o$). Without the second constraint, of course, the optimal level of tariff, τ^o , will be chosen due to welfare maximization behavior of the home government. However, one needs to consider the second condition in order to attract the firm to export. We know that $\Pi_d^f(\alpha) = \frac{(2\alpha-3)^2}{(-8\alpha+15+4\alpha^2)^2} - S$ and $\Pi_d^f(\tau) = \frac{1}{225}(-3+4(\tau))^2$. Suppose that $S = 0$. Then a level of tariff that makes $\Pi_d^f(\tau) = \Pi_d^f(\alpha^o = 1)$ is 0.41. At this level, the firm is indifferent between exporting and investing directly. If S is 0.92×10^{-4} , then the tariff level is $\frac{3}{7}$. When S is beyond 0.92×10^{-3} , then tariff level needs to be above $\frac{3}{7}$. Given the tariff range that satisfies the first condition, we can easily verify the proposition. ■

This proposition is interesting as it shows that there is an incentive for the home government to set a suboptimal tariff against the foreign country. It implies that the home country unilaterally liberalizes its trade. The home country would be better off when it can induce export rather than FDI. However, given the optimal tariff setting, the foreign firm may be reluctant to export, in particular, when its set-up costs are zero (case (a)) or negligible (case (b)). Accordingly, in order to induce the foreign firm to export, the home government should reduce tariff. We provide the following figures to clarify the analysis.

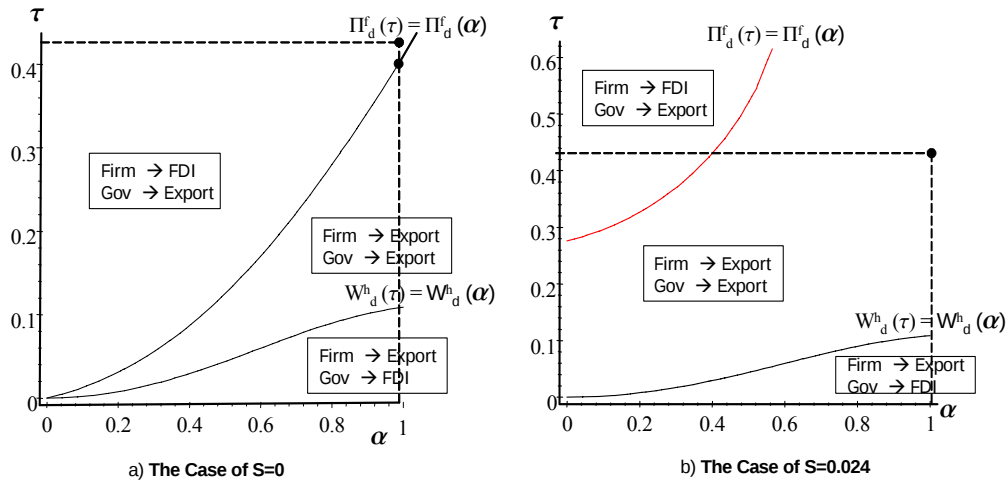


Figure 6: The Benchmark Case (Without Agreements)

The first figure depicts the case of $S = 0$, and the second figure depicts the case of $S = 0.024$. In both figures, the upper curve shows combinations of tariff and LCR rate that makes $\Pi_d^f(\tau) = \Pi_d^f(\alpha)$. Recall that we called this curve as the profit equivalence curve (PEC). The lower curve in the figures shows combinations of tariff and LCR rate that makes $W^h(\tau) = W^h(\alpha)$. Lets call this curve as a welfare equivalence curve (WEC). Any policy combination above (below) this curve makes $W^h(\tau) > W^h(\alpha)$ ($W^h(\tau) < W^h(\alpha)$).

It is obvious that there is a conflict between the home government and the foreign firm in term of the preferred mode of entry. Policy combinations above

the PEC induce the foreign firm to do FDI. However, the home government would like the foreign firm to export. Similarly, policy combinations below the WEC also show a conflict of interest between the home government and the foreign firm. The home country wants the foreign firm to choose FDI, but instead the foreign firm chooses to export. Policy combinations located between the PEC and the WEC do not result in a conflict of interest. Here, they both would prefer the export mode to the FDI mode.

However, notice that for the case of $S = 0$, the point representing the combination of the optimal tariff rate $\tau^o = \frac{3}{7}$ and the optimal LCR rate $\alpha^o = 1$ is situated above the PEC. Thus, the foreign firm would choose to do FDI. Evidently, in order to induce the foreign firm to export, the home government should reduce its tariff level below the optimal level. It is straightforward to show that the new level of tariff is 0.41, which is obviously smaller than $\tau^o = \frac{3}{7}$. As the set up costs increase from 0 to $S^* (= 0.92 \times 10^{-3})$, the suboptimal level of tariff approaches the optimal level, τ^o .

If S is larger than S^* (see the second figure), the PEC will shift upward. Consequently, the optimal combination of tariff and LCR rate will lie in between the PEC and the WEC. Hence, there is no conflict of entry-mode preference between the home country and the foreign firm. This implies that the government does not need to set a suboptimal tariff level. When the set-up costs are sufficiently high, the foreign firm would prefer to choose the export mode to the FDI mode, and the home government would set the optimal tariff level.

4 The Case of Trade Agreements

In this section, we investigate a possibility of trade and investment liberalizations between the two countries. In particular, we evaluate the willingness of the home country to liberalize its tariff and LCR rate in **the absence of reciprocity**. Note that, these liberalizations can also be the outcome of

compulsory policies enforced by trade agreements such as WTO.¹³

To analyse this, we first solve the global welfare maximization problem. The global welfare is the sum of the home and foreign countries' welfare. Since at stage 2, the foreign downstream firm has a choice between export and FDI, we can derive the following choice rule.

$$Max [G(\tau), G(\alpha)] \quad (27)$$

in which,

$$G(\tau) = \frac{8}{25} - \frac{3}{25}\tau - \frac{1}{50}\tau^2 \quad (28)$$

$$G(\alpha) = \frac{1}{2} \left(\frac{139\alpha^2 - 186\alpha - 52\alpha^3 + 144 + 12\alpha^4}{(4\alpha^2 - 8\alpha + 15)^2} \right) - S \quad (29)$$

For each of the global welfare functions, we can derive the following globally optimal tariff rate and LCR rate.

Lemma 2 (a) *The optimal tariff rate (τ^e) that maximizes the global welfare function, given that the export mode is chosen, is zero ($\tau^e = 0$).* (b) *The optimal LCR rate (α^e) that maximizes the global welfare function, given that the FDI mode is chosen, is zero ($\alpha^e = 0$).* (c) *When $S = 0$, the globally optimal tariff rate and LCR rate ($\tau^e = 0$ and $\alpha^e = 0$) are potentially efficient because $G(\tau^e) > G(\tau^o)$ and $G(\alpha^e) > G(\alpha^o)$.*

Proof. This is trivial from expressions (28), (29), and also a straightforward substitution of τ^o , α^o , τ^e , and α^e into these expressions. ■

The following figure depicts the two global welfare lines against the tariff and LCR level in the same graph when $S = 0$.

¹³Without reciprocity the foreign country will certainly gain from these agreements at the expense of the home country. On the contrary, **with reciprocity**, meaning that the home country agrees to sign agreements in return for a reciprocal action by the foreign country, both countries will gain (Staiger, 1999). Obviously, the incentive of the home country to sign agreements should be higher when reciprocity is present.

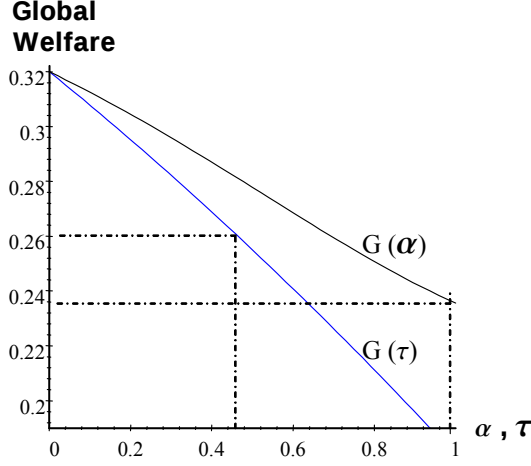


Figure 7: Two Global Welfares When $S = 0$

As depicted in this picture, global welfare is maximized when the globally efficient tariff or LCR is chosen. This implies that there is a potential global benefit of having either a trade or investment liberalization. Unfortunately, it can be verified that these globally efficient policies give different levels of welfare to both countries.

$$W^h(\tau^e) < W^h(\tau^o), W^h(\alpha^e) < W^h(\alpha^o) \quad (30)$$

$$W^f(\tau^e) > W^f(\tau^o), W^f(\alpha^e) > W^f(\alpha^o) \quad (31)$$

Thus, there is a welfare loss for the home country, but at the same time there is a welfare gain for the foreign country. Given this fact, we need to verify whether or not the home country will have an incentive to implement any liberalization policy. Such an incentive will indeed exist if and only if there is a proper transfer scheme from the foreign country to the home country.¹⁴

Proposition 2 *Given that there is a proper transfer scheme between the home and foreign countries, both countries' welfare will be better off when there is liberalization in trade or investment.*

¹⁴In section 5, we will explore this issue in details. For the time being, we assume that such a proper transfer scheme do exist.

Proof. This is trivial from (30) to (33). ■

In the next subsections, we will analyze the conflict of entry-mode preference between the world and the foreign downstream firm for different size of set-up costs. This analysis is useful to evaluate the liberalization routes that the world may follow.

4.1 No Set-Up Costs

Consider the case of $S = 0$. The upper line in figure 7 depicts policy combinations of tariff and LCR such that $G(\tau) = G(\alpha)$. We will call this line as the global welfare equivalence curve (GWEC). All policy combinations above this curve imply that the world prefers the FDI mode to the export mode because of. Those combinations below the curve imply that the world prefers the export mode to the FDI mode. Recall that the lower curve (the PEC) represents policy combinations that makes $\Pi_d^f(\tau) = \Pi_d^f(\alpha)$.

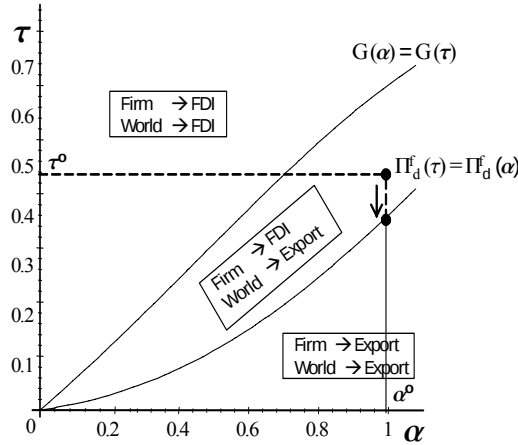


Figure 8: The Case With Agreements ($S = 0$)

Hence, the area above the GWEC depicts policy combinations that make both the foreign firm and the world prefer the FDI mode to the export mode. The area below the PEC represent policy combinations that make both the foreign firm and the world prefer the export mode to the FDI mode. However, the area between the GWEC and PEC represents an area

of conflicting preferred mode of entry. The foreign firm would like to choose FDI, but the world would prefer the foreign firm to export.

Recall that for the case of $S = 0$, the home country would choose, without agreement, the suboptimal level of tariff which is located on the PEC line. We take this point as the starting point before the world engages in either tariff or LCR liberalization.

Let us consider the case in which the home country reduces its tariff rate to zero. It is obvious that in this case there is no need for the home country to reduce its LCR rate. This is simply because the foreign firm is not choosing the FDI mode and thus is not subjected to the LCR policy. Nonetheless, this is not the only possible liberalization route. Notice that given the suboptimal level of tariff, when the home country sufficiently reduces the LCR rate such that it reaches the left hand side area of the GWEC line, then both countries will be located in the non-conflicting area. Both the foreign firm and the world will prefer to have an FDI. Evidently, this investment liberalization route gives the world the same amount of global welfare as is obtained previously following the trade liberalization route. Notice, however, that a liberalization policy should avoid slipping into the conflicting area of the preferred mode of entry.

4.2 Positive Set-Up Costs

When set-up costs are positive but sufficiently small we have the same qualitative result as in the case of $S = 0$. However, there is a difference in the nature of conflicting area of preference between the world and the foreign firm and also in the initial point before the agreement takes place (See figure 8).

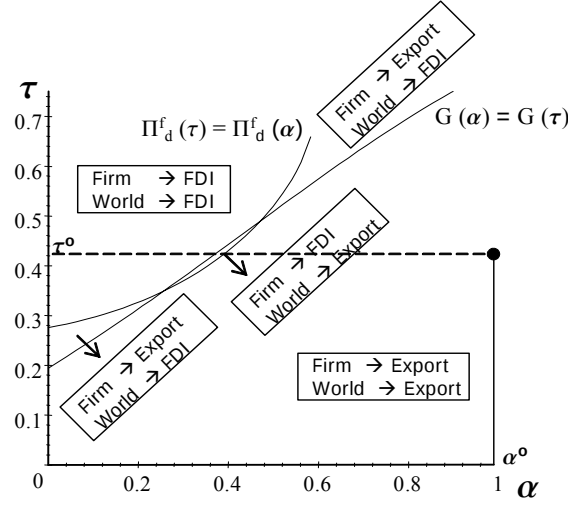


Figure 9: The case With Agreements ($S=0.024$)

We have now three regions of conflicting preference between the world and the foreign firm. Notice also that there is no need for the home government to impose a suboptimal tariff rate (see section 3 for the explanation). As in the previous case, there are many routes to liberalization. The country can opt to liberalizing either trade or investment, or both trade and investment.

Now, when S is large, the PEC line $\Pi_d^f(\tau) = \Pi_d^f(\alpha)$ shifts upward. Thus it makes the export mode more attractive for the foreign firm. Notice from Figure 9 that we have a change in the nature of conflicting preference between the world and the foreign firm.

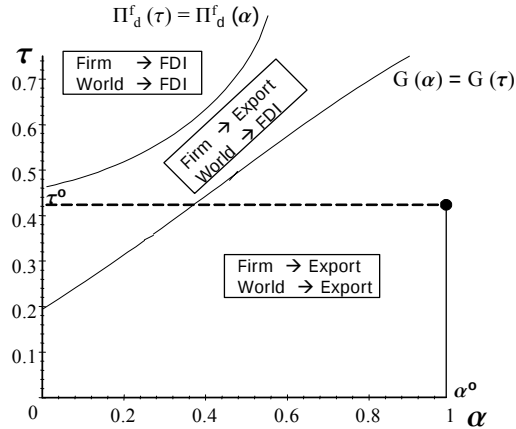


Figure 10: The Case With Agreements ($S > 0.024$)

4.3 Summary

To sum up this section, let us consider the following situation. Suppose that the home country has signed a trade agreement such as the WTO agreement, and this agreement requires the home country to impose a zero tariff. As we have shown in the above analysis, the home country would be willing to abide to the agreement and to remove its tariff barrier given that there is a proper transfer scheme. In addition, WTO also requires member countries to carry out investment liberalization to accompany trade liberalization. A removal of LCR can be seen as an example of investment liberalization. Let's use Figure 10 to help us understand the liberalization process. This figure is the same as Figure 7, except that we have elaborated it and put some more details that we have omitted before.¹⁵

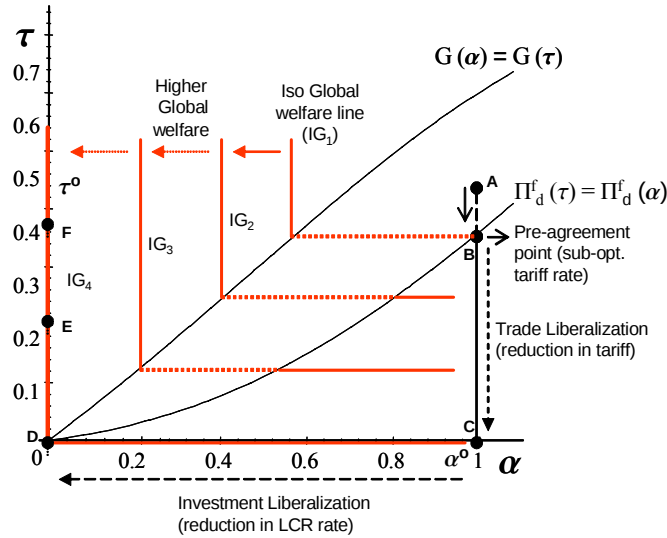


Figure 11: Iso Global Welfare Lines

We know that the initial pre-agreement point in this case is the point in which the home country imposes the sub-optimal tariff rate (point B). This point is located on the 'iso global-welfare' line (IG₁, the first kinked line in the figure). This line represents all combinations of tariff and LCR rates that

¹⁵We can apply the same graphical analysis to the other figures in this section in a similar fashion.

give the same global welfare, with the exception the dashed part of the line. Note that, along this line, the foreign firm entry mode could either be the export mode or the FDI mode. All combinations on the vertical (horizontal) part indicates that the entry mode is FDI (export). The dashed line on the horizontal part of IG_1 (located in between the GWEC line and the PEC line) indicates the conflicting case, i.e. the foreign firm chooses FDI, while the home country would prefer to have export as the entry mode. Hence, this dashed part represents the 'unattainable' global welfare. The closer the iso global-welfare line to the origin, the higher the global welfare will be. Thus, an agreement on trade liberalization aims to achieve the highest global welfare, which is achieved when $\tau = 0$.

When the home country starts to liberalize trade, it moves down vertically from point B to point C. Point C gives the same global welfare as points D, E, and F, because all of these points are located on the same iso global-welfare line (IG_4). *This implies, that liberalizing investment (moving to point D on IG_4) will not make the home country worse off.*

However, there are many liberalization routes that can be adopted by the home country. For instance, the home country may prefer to only partially liberalize trade, but instead to fully liberalize investment. In this case, the home country will reach point E. Alternatively, the home country may opt to only liberalize investment and not trade as in Point F. Our analysis shows that *trade and investment liberalizations are substitutes*.

5 Transfer of Surplus and Bargaining Power

As is mentioned before, one crucial condition for the feasibility of an agreement is the existence of a proper transfer scheme given by the foreign country (who is benefitted from the agreement) to the home country. Without such a transfer, the home country will be worse off, and thus it will not have any incentive to sign such an agreement.

In this section, we endogenize the incentive for the home country to sign agreements by considering a more explicit analysis of the transfer scheme.

We assume that the transfer is a result of a bargaining process on the division of surplus from liberalizations between the two countries. We use the Generalized Nash-Bargaining Framework to derive bargaining conditions that will induce the home country to sign agreements.¹⁶

First, we derive the total surplus from having agreements, which is no other than the resulting increase in the global welfare brought about by the agreements. Let us first consider the case of the LCR policy. The global welfare without agreements are,

$$G(\alpha^o) = W^h(\alpha^o) + W^f(\alpha^o) \quad (32)$$

while, with agreements we have,

$$G(\alpha^e) = W^h(\alpha^e) + W^f(\alpha^e) \quad (33)$$

Recall from expression (31) that $W^h(\alpha^o) > W^h(\alpha^e)$ and $W^f(\alpha^o) < W^f(\alpha^e)$, in which $\alpha^o > 0$ and $\alpha^e = 0$. The total surplus can then be expressed as,

$$\Delta G_{LCR} = G(\alpha^e) - G(\alpha^o) \quad (34)$$

which is positive (see Lemma 2). The foreign country who is benefitted from the LCR agreement must transfer a part of the total surplus, i.e. $\beta(\Delta G_{LCR})$, in which $0 \leq \beta \leq 1$, to the home country. The amount of transfer, β , represents the bargaining power of the home country, while $(1 - \beta)$ represents the bargaining power of the foreign country.¹⁷ This bargaining power is determined exogeneously outside the model. The larger a country's bargaining

¹⁶See also Furusawa and Wen (2002) who consider a Rubinstein alternating-offer bargaining framework in trade negotiation.

¹⁷The bargaining problem can be expressed formally as a pair of a convex set of feasible gains (losses) from agreements for the foreign and home countries and disagreement payoffs (the case without agreements). The solution to this bargaining problem is obtained by maximising the weighted average of the product of the utility gains for bargaining parties minus the disagreement payoffs. It can be shown that the resulting division of the surplus will be $\beta(\Delta G(\alpha))$ for the home country and the rests, $(1 - \beta)(\Delta G(\alpha))$, for the foreign country. See Muthoo (1999) for more information on the generalized Nash Bargaining solution.

power the more it will gain from the bargaining process. When both countries have equal bargaining power ($\beta = \frac{1}{2}$), then they will just split the surplus equally. Notice that the solution for the case of $\beta = \frac{1}{2}$ coincides with the Nash Bargaining Solution.

Obviously, the amount of transfer should be enough to compensate the home country for the losses incurred from liberalization,

$$\beta (\Delta G_{LCR}) > W^h(\alpha^o) - W^h(\alpha^e) \quad (35)$$

Using (32), (33), and (34) we can derive the following expressions,

$$\frac{\beta}{1-\beta} = \frac{(W^h(\alpha^o) - W^h(\alpha^e))}{(W^f(\alpha^o) - W^f(\alpha^e))} \quad (36)$$

$$\frac{\beta}{1-\beta} = \frac{(W^h(\tau^o) - W^h(\tau^e))}{(W^f(\tau^o) - W^f(\tau^e))} \quad (37)$$

Similarly, we can derive an equivalent expression for the case of tariff policy,

Using Lemma 1, expressions (23) and (24), and also deriving the foreign country's welfare under either tariff policy or LCR policy, we can simplify the above expressions into,

$$\beta = \frac{105 - 245\tau}{345 - 469\tau} \quad (38)$$

$$\beta = \frac{604\alpha^3 - 1328\alpha^2 - 69\alpha + 1035}{668\alpha^3 - 552\alpha^2 - 4365\alpha + 6669} \quad (39)$$

Figure 11 depicts the above expressions. Using this figure, we can analyze the relationship between the relative bargaining power and the incentive of the home country to sign agreements and carry out liberalization policies.

following proposition.

Proposition 3 *The distribution of bargaining power between the two countries constrains the extent of trade and investment liberalizations. Thus, there may be a case of "natural rate of tariff (or LCR) protection". There will be no agreements signed if the home country's bargaining power is too low (below $\underline{\beta}$).*

5.1 Sustainability of the Transfer Scheme

In this subsection, we analyze the long-run sustainability of the transfer scheme above. In other words, we evaluate the incentive of the foreign country to renege from the negotiated transfer scheme in a repeated setting. We will only focus the analysis on the case of tariff policy and assume that the initial pre-agreement tariff rate is the suboptimal tariff rate ($\tau = \frac{9}{22}$).

One time gains for the foreign country from deviating, i.e. not giving the transfer $\beta\Delta G_{Tariff}$ are,

$$\left[W^f(\tau^e = 0) - W^f(\tau = \frac{9}{22}) \right] \quad (40)$$

Assume that both parties share equal bargaining power ($\beta = \frac{1}{2}$), and thus the level of tariff can be reduced all the way to zero (free trade)¹⁸. In addition, we only consider the case in which the home country follows a *trigger strategy*, that is the home country will punish the foreign country by returning back forever to the *protectionist regime* ($\tau = \frac{9}{22}$) if the foreign country deviates. The gains for the home country if there is no deviation are,¹⁹

$$\left[\underbrace{W^h(\tau^e = 0) - W^h(\tau = \frac{9}{22})}_{<0} + \beta\Delta G_{Tariff} \right] > 0 \quad (41)$$

¹⁸As is derived in the previous section, when both countries have the same bargaining power, there will be no 'natural rate of tariff' ($\tau^e > 0$). Consequently, the tariff rate can be reduced to zero ($\tau^e = 0$).

¹⁹Note that signing agreements is better for the home country provided that there is transfer $\beta\Delta G_{Tariff}$. Formally, this implies that $W_n(\tau^e = 0) - W(\tau^o = \frac{9}{22}) + \beta\Delta G_{Tariff} > W(\tau^o = \frac{9}{22})$.

It is straightforward to see that when there is a deviation, the home country will be worse off because,

$$\left[W^h(\tau^e = 0) - W^h(\tau = \frac{9}{22}) \right] < 0 \quad (42)$$

The gains for the foreign country when the punishment is imposed.

$$\frac{1}{1-\delta} W^f(\tau = \frac{9}{22}) \quad (43)$$

δ denotes the discount factor. Hence, total gains (Ψ) for the foreign country from deviating (subscript nc indicates the non-cooperative regime),

$$\Psi_{nc} = \left[W^f(\tau^e = 0) - W^f(\tau = \frac{9}{22}) \right] + \frac{1}{1-\delta} W^f(\tau = \frac{9}{22}) \quad (44)$$

If instead the foreign country honors the negotiation outcome, the gains will be,

$$\Psi_c = \frac{1}{1-\delta} \left[W^f(\tau^e = 0) - W^f(\tau = \frac{9}{22}) - \beta \Delta G_{Tariff} \right] \quad (45)$$

Therefore, a deviation is not profitable when $\Psi_c > \Psi_{nc}$. We can simplify this inequality to get,

$$\delta > \beta \frac{W^h(\tau^e = 0) - W^h(\tau = \frac{9}{22}) + (W^f(\tau^e = 0) - W^f(\tau = \frac{9}{22}))}{W^f(\tau^e = 0) - 2W^f(\tau = \frac{9}{22})} \quad (46)$$

$$\delta > 1.9595\beta \quad (47)$$

This condition determines the required discount rate to sustain the negotiated transfer scheme for different values of the home country's bargaining power (β). The following figure depicts this condition.

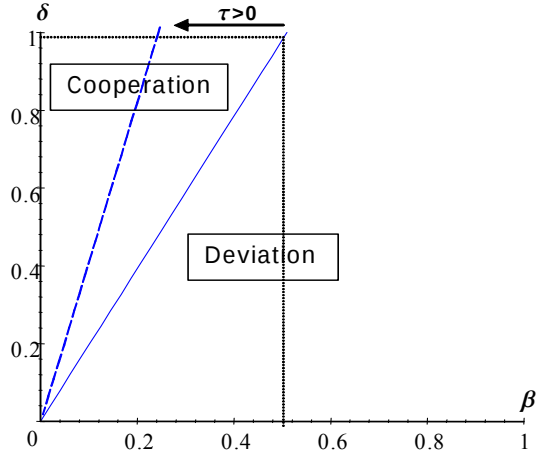


Figure 13: Sustainability of the Transfer Scheme

Below the lines, the foreign country will always renege from its promise to give transfer to the home country. When the new tariff rate post-agreements is bigger than zero (at a natural rate of tariff protection), the line will rotate anti-clockwise. We can then establish the following proposition.

Proposition 4 (i) *The higher the new tariff rate post agreements, the more difficult it is to sustain the transfer scheme.* (ii) *The higher the relative bargaining power of the home country, the higher the discount rate that is needed to sustain the transfer scheme.* (iii) *It is impossible to sustain the transfer scheme when the home country has significantly stronger bargaining power than the foreign country.*

5.2 Further Remarks on the Transfer Scheme

The transfer scheme that we consider above is still very general. We have not been explicit about the nature of this transfer scheme. In this section, we provide two intuitive interpretations on the transfer scheme. First, we can consider it as the *required reciprocal benefits*. Staiger (1994) argues that countries sign trade agreements not because they wish to reduce their own trade barriers, but because they want to seek a reduction in trade barriers imposed by their foreign trading partners and thus to gain access to the

foreign market. This is why *reciprocity* is a crucial factor that helps sustaining trade agreements. In contrast, we do not have reciprocity in this paper, but instead we have a surplus transfer from the foreign country, which gains access to the home market, which make losses due to opening up its market. They both have the same role, i.e. as a necessary condition for the viability of trade agreements. Thus, albeit of this difference, the transfer scheme in our model could as well be interpreted as the amount of reciprocity benefits that is required to make agreements work.

Second, borrowing from the political economy consideration, this transfer can be considered as a lobbying contribution given to the home country's government by the foreign firm. The aim of this lobbying for support is to persuade the home country to adopt a non protectionist trade regime. See Hillman and Ursprung (1988) for an example of such a political economy analysis in an international trade framework.²⁰

6 Conclusion

We explore, in a very simple model of vertical structure, the relationships between a host country's endogenous choice of trade and investment policies and a foreign multinational firm's endogenous choice of entry mode. Furthermore the analysis is extended to consider a sustainable agreement on trade and investment liberalizations.

We find that (1), without any agreement committed by the two parties, there might be a conflicting preferred mode of entry between the host country and foreign multinational firm, nonetheless (2) it is possible for the two countries to support trade or(and) investment liberalization given a proper transfer scheme between them, but (3) one might need to consider the host

²⁰They model the lobbying process as a contest between foreign and domestic firms. The foreign firm lobbies a domestic political candidate with a non protectionist view, while the domestic firm lobbies another domestic candidate with a protectionist view. Both candidates are competing in an election. This type of contest model is also known in the literature as the rent seeking model (see Tullock (1980) and Dixit (1987) for a more thorough analysis).

country's bargaining power as it will determine a natural rate of tariff (or LCR) protection against the foreign country and also (4) the foreign firm's time preference in the long run should be taken into account since it has an influence on the incentive to renege from such an agreement.

Our paper is the first kind of research investigating the endogenous choice of entry mode of a multinational firm facing the host country's policy mix that consists of tariff and local content policies. Additionally, it also contributes to trade and investment literature by clarifying how a host country can liberalize tariff with or without TRIMs consideration, or vice versa

References

- [1] Bagwell, Kyle and Rober W. Staiger (1996), "Reciprocal Trade Liberalization," *National Bureau of Economic Research*, No. 5488.
- [2] Belderbos, Rene and Leo Sleuwagen (1998), "Tariff Jumping DFI and Export Substitution: Japanese Electronics Firms in Europe", *International Journal of Industrial Organization*, 16(5), pp.601-638.
- [3] Brainard, S. Lael (1993), "A Simple Theory of Multinational Corporations and Trade with a Trade-Off between Proximity and Concentration," *National Bureau of Economic Research*, No. 4269.
- [4] Corden, W. M. (1971), *The Theory of Protection*, Oxford, Oxford University Press.
- [5] David, Carl, Matusz, Steven J. and Mordechai E. Kresini (1985), "Analysis of Performance Standards for Direct Foreign Investment," *Canadian Journal of Economics*, 18(4), pp. 876-890.
- [6] Dixit, Avinash (1987), "Strategic Behavior in Contests," *American Economic Review*, 77(5), pp.891-898.

- [7] Furusawa, Taiji and Wen Quan (2002), "Disagreement Points in Trade Negotiations," *Journal of International Economics*, Vol.57, pp.133-150.
- [8] Grossman, G. M. (1981), "The Theory of Domestic Content Protection and Content Preference," *Quarterly Journal of Economics*, 96, pp. 583-603.
- [9] Hollander, Abraham (1987), "Content Protection and Transnational Monopoly," *Journal of International Economics*, 23, pp. 283-297.
- [10] Hillman, Arye and Heinrich Ursprung (1988), "Domestic Politics, Foreign Interests, and International Trade Policy," *American Economic Review*, 78(4), pp.729-745.
- [11] Helpman, Elhanan (1984), "A Simple Theory of International Trade with Multinational Corporations," *Journal of Political Economics*, 92(3), pp 451-471.
- [12] Kokko, Ari and Magnus Blomstrom (1995), "Policies to Encourage Inflows of Technology Through Foreign Multinationals," *World Development*, Vol.23, pp.459-468.
- [13] Krishna, Kala and Motoshige Itoh (1988), "Content Protection and Oligopolistic Interactions," *Review of Economic Studies*, LV, pp. 107-125.
- [14] Lahiri, Sajal., Yoshiyasu Ono, (1998), "Foreign Direct Investment, Local Content Requirement, and Profit Taxation," *The Economic Journal*, 108, pp. 444-457.
- [15] Lopez-da-Silanes, Florencio, James R. Markusen, and Thomas F. Rutherford (1996), "Trade Policies Subtleties with Multinational Firms," *European Economic Review*, Vol.40, pp.1605-27.
- [16] Moran, Theodore (1992), "Strategic Trade Theory and the Use of Performance Requirements to Negotiate with Multinational Corporations

- in the Third World: Exploring a "New" Political Economy of North-South Relations in Trade and Foreign Investments," *The international Trade Journal*, Vol.7 pp.45-83.
- [17] Markusen, James R. (1995), "The Boundaries of Multinational Enterprises and the Theory of International Trade," *Journal of Economic Perspectives*, 9(2), pp. 169-189.
 - [18] Markusen, James R. and Anthony J. Venables (1995), "Foreign Direct Investment and Trade," *mimeo*, p.41.
 - [19] Muthoo, Abhinay (1999), *Bargaining Theory with Applications*, Cambridge University Press-New York, 357 p.
 - [20] Qui, Larry D. and Zhigang Tao, "Export, Foreign Direct Investment, and Local Content Requirement," *Journal of Development Economics*, 66, pp. 101-125.
 - [21] Richardson, Martin (1991), "The Effects of a Content Requirement on a Foreign Duopsonist," *Journal of International Economics*, 31, pp. 143-155.
 - [22] Staiger, Robert W (1994), "The Economics of GATT," *NBER Reporter*, Spring, pp.16-19.
 - [23] Tullock, Gordon (1980), "Efficient Rent Seeking," in J, Buchanan, R. Tollison, and G. Tullock, eds., *Toward a Theory of the Rent-Seeking Society*, College Station: Texas A&M University Press.
 - [24] UNIDO (1986), *Industrial Policy and the Developing Countries: an Analysis of Local Content Regulations*, UNIDO/IS. 606. 3 February.
 - [25] Vousden, Neil (1987), "Content Protection and Tariffs under Monopoly and Competition," *Journal of International Economics*, 23(3/4), pp. 263-282.

- [26] Wonnacott, R. J. and P. Wonnacott, (1967), *Free Trade between the United States and Canada: The Potential Economics Effects*, Cambridge, Harvard University Press.